

RETROFIT IN EUROPE

**ELECTRIC CONVERSION / RETROFIT / BATTERIES / HYDROGEN
IMPACT / CIRCULAR ECONOMY / SAVINGS / LOCAL JOBS**



Arnaud Pigounides
CEO of REV
Founder of the French Retrofit Sector

#DECARBONATENOW

Let's face it!
We have
3 years
to reverse
Global
warming

NewScientist

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Health Space Physics Technology [Environment](#) Mind Humans Life Mathematics Chemistry Earth Society

Environment

Global emissions must peak in just three years to stay below 1.5°C

A major report from the Intergovernmental Panel on Climate Change warns that the window for avoiding more than 1.5°C of global warming has almost closed, with immediate and drastic cuts the only way to stay below the target

The New York Times

Climate Change Is Speeding Toward Catastrophe. The Next Decade Is Crucial, U.N. Panel Says.

A new report says it is still possible to hold global warming to relatively safe levels, but doing so will require global cooperation, billions of dollars and big changes.

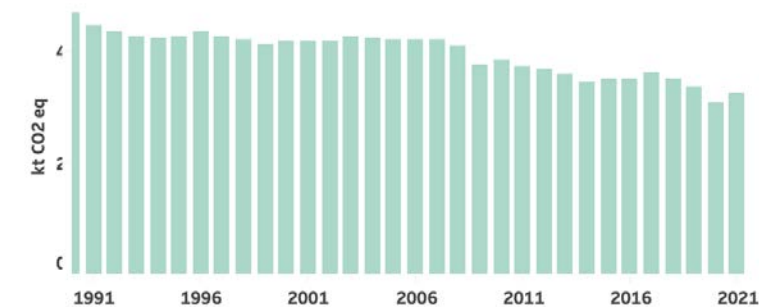
Transportation
is 30%
of the
3,2 billions
of tons eqCO₂
of GHG
each year in Europe

Responsible of climate change

Responsible of hundred thousands of premature deaths in Europe

Emissions in EU-27

Hover over the bars to see emissions



Even if it decreases in Europe thanks to European Path to Neutral and GHG efforts, Transportation volume is growing.

<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>



EUROPE

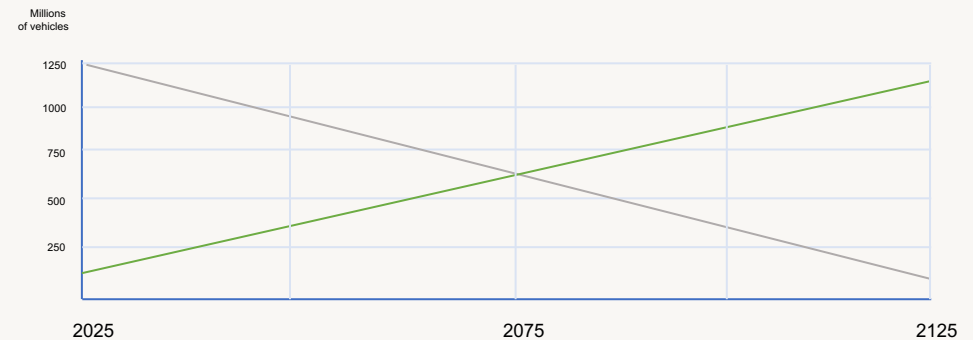
330

**Millions
vehicles**

**97% ICE
(diesel / gas)**

**1.3 Billion
vehicles in the world**

**It would take 50 years to reach
50% No Emission Vehicles
50% GHG Emission**





INTRODUCTION

Retrofit is a global phenomenon

More than 30 countries
More than 300 companies
More than 30,000 vehicles already converted



FRANCE

The most advanced ecosystem and regulation

USA

The country where it all started with more than 50 companies

UK

Restomods and industrial heaven

GERMANY

Leader in industrial retrofit for buses and trucks in Europe

LATIN AMERICA

Growing

EUROPE

Harmonised regulation by 2025

AFRICA

Plan of 300,000 conversions in Egypt, Kenya, Gabon

INDONESIA

Target: 200,000 motorcycles converted

Et Bien plus



A BIG AND BIGGER MARKET

Global Market Insights

VEHICLE CONVERSION MARKET

GLOBAL STATISTICS

Market value (2022)	Market value (2032)	CAGR (2023-2032)
\$4.6 BN	\$10.5 BN	>8.5%

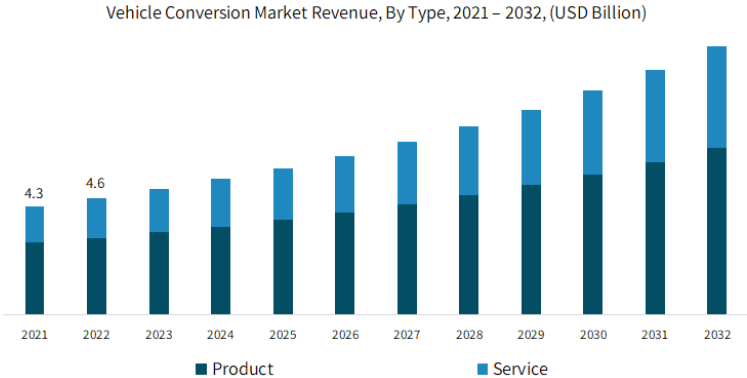
SEGMENT STATISTICS

Service segment Market share 2022	Commercial vehicle segment Market value 2022	commercial conversion segment CAGR 2023-2032
>35%	>\$1.5 BN	>8%

North America Share 2022 >40%



From \$4.6 BN To \$10.5 in 2032



Source: www.gminsights.com



FRANCE AND EUROPE

Retrofitting is allowed in France.

Since April 2020, it has been possible to convert all combustion vehicles into electric vehicles.

Some countries allow it (Germany, Netherlands) but some don't (Spain, Serbia, etc..)

A European harmonization is in progress.



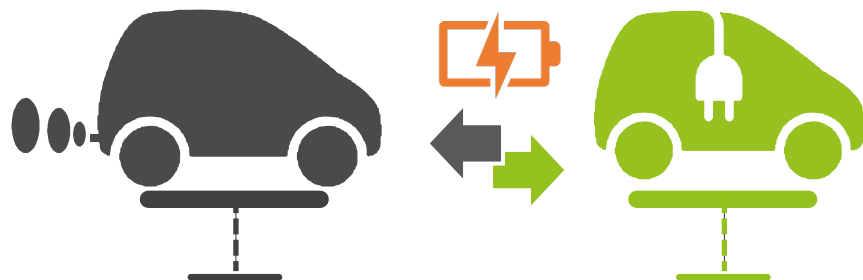
ELECTRIC CONVERSION / RETROFIT: WHAT IS IT?





WHAT IS RETROFIT?

Retrofitting is a process that consists of transforming a thermal vehicle (gasoline or diesel) into electric (whose autonomy varies depending on the model).

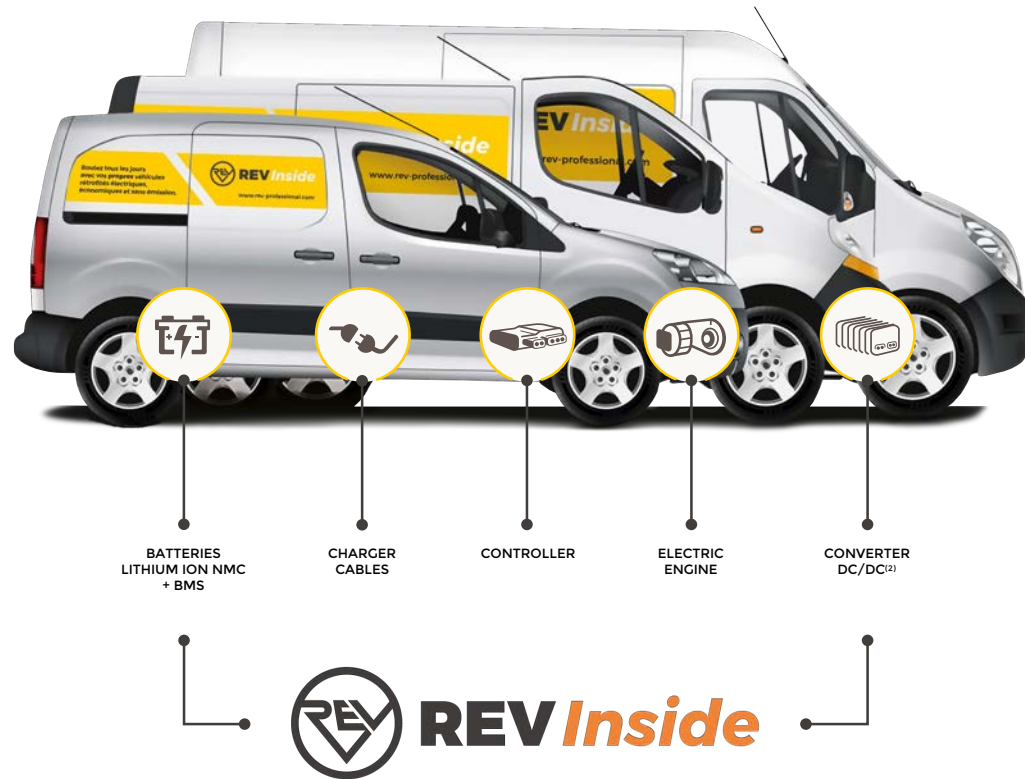


In short, it is an alternative that allows you to benefit from the advantages of an electric vehicle, at a lower cost.

And concretely, this gives a second life to your old vehicle (no more than ten years), which is often still in very good condition to drive.



PURE CIRCULAR ECONOMY



- ✓ It's good for the planet and the environment,
- ✓ This is good for the purchasing power of users,
- ✓ It's good for jobs,
- ✓ It is good for the quality of urban life, as well as rural (air and noise)

Retrofit responds to major challenges of sustainable development, in a circular economy approach so as not to destroy, but to rehabilitate vehicles in perfect condition to drive ...

And above all, to put activity back into France throughout the production chain (from vehicles to batteries to hydrogen).

It is a real clean mobility solution of the future for ALL.

- emissions
+ savings

- waste
+ advantages



- noise
+ fun

DAILY IMPACT



For direct consumers:

- Individuals: Access to clean vehicles at a lower cost.
- Craftsmen: Access to a clean motorization without having to change vehicles and completely redevelop it.

For public administration and businesses:

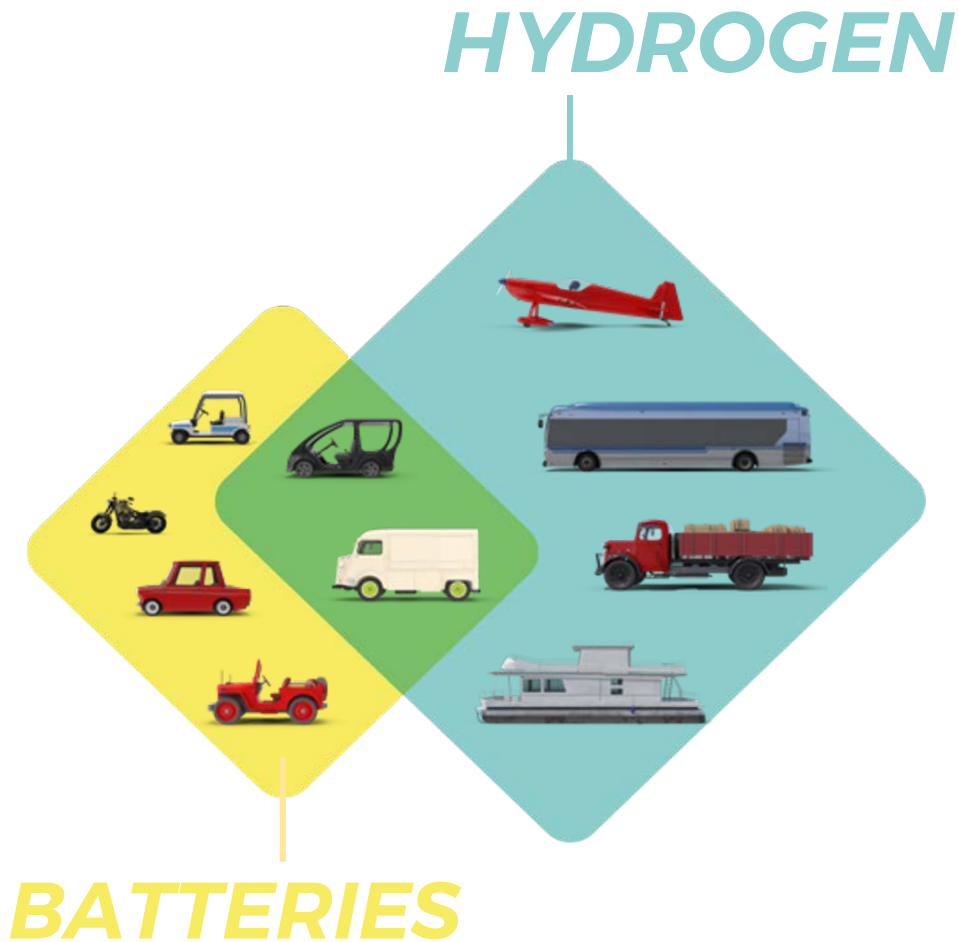
- Compliance with the decarbonisation objectives of their existing fleet and their obligations to purchase new vehicles.
- Exemplarity of the composition of their vehicle fleets.
- Support for industry and automotive jobs.

And more particularly for cities:

- Improvement of living conditions. Electric vehicles have the advantage of generating low noise in urban traffic conditions and can thus help reduce noise pollution in the city.
- An ideal answer to the problem of last-mile logistics, which represents between 30 and 40% of the economic costs of transport and emissions.*



TECHNOLOGY OF THE FUTURE



Electric retrofit is with **batteries** or **hydrogen with Fuel Cell**

Small use < 180 km = batteries

Large use > 180 km = Hydrogen

INDUSTRIAL MANUFACTURER REGULATION

***Any vehicle >5 years
can be retrofitted***

***Respect
of the weight
of masses balance
of the original power***

(no transformation of other security elements)

State approval

(UTAC CERAM - CNRV)

The great strength of French retrofit is to propose an **industrializable** solution (economical, sustainable, reliable and scalable)

Through a manufacturer's '**Series**' approval, respecting current European standards for components and batteries

Thus ensuring a **higher degree of security** than all the 'artisanal' retrofits present in the world (*vs + 50 countries where it is sometimes... dangerous*)

And the **certification** of partner garages or workshops retrofitted in 'electromechanics' (garages of tomorrow, jobs and training of the future)

DOUBLY CERTIFIED KITS



1/ All elements are approved and certified upstream

=> car manufacturer supply chain

2/ The prototype vehicle is designed by our engineering teams

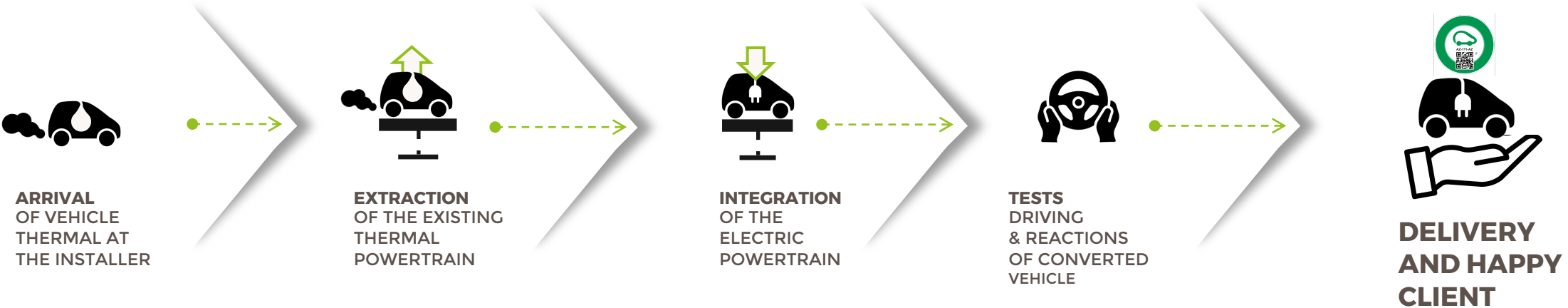
=> 15 engineering competences, electronics, control

3/ Tests and Certification









=> between 12 and 15 months to develop a model



THE TRANSFORMATION PROCESS



CLIENT **30 TO 40 HOURS - BETWEEN 2000 AND 2400€**

	 2 MECHANICS / 1 LIFT	 1 MECHANIC
 	 30 TO 40 HOURS  1800 € À 2200 €	 3 HOURS  200 €

ECOLOGICAL AND ECONOMICAL BENEFITS OF RETROFIT





— ECOLOGICAL IMPACT

-66%
GHG

Retrofit is
**66% decrease
of Greenhouse Gases***
On the Vehicle life

*GES : CO2, Nox,...
Vs conservation of a diesel vehicle.

Source Ademe
Retrofit Lifecycle analysis 2021 -
www.ademe.fr





ECOLOGICAL IMPACT

**REDUCTION OF GREENHOUSE GASES
OVER THE ENTIRE LIFE OF THE VEHICLE
FOR A MID-LIFE RETROFIT (AT 10 YEARS OLD)**

**vs STAYING
DIESEL**



1 CAR



-66%
GHG

=

4 TONS
GHG eq. CO2

Saved on 6 tons average.

1 LCV



-61%
GHG

=

6 TONS
GHG eq. CO2

Saved on 10 tons average.

**1 TRUCK
OR BUS
(12M)**



-87%
GHG

=

316 TONS
GHG eq. CO2

Saved on 363 tons average.



ECONOMICAL IMPACT



New EV	Savings	Retrofit	Use savings	Final Cost
30 000€	-12 000€*	18 000€	-9 000€*	9 000€
35 000€	-11 000€*	24 000€	-9 000€*	15 000€
55 000€	-21 000€*	34 000€	-10 000€*	24 000€
580 000€	-310 000€*	270 000€	Tender*	180 000€

* Calculation made from the average of the manufacturer's rates displayed. By adding the savings on equipment and customization of the vehicle.

50%
SAVINGS*
VS PURCHASE OF
A NEW ELECTRIC
VEHICLE
AND UP TO 70%
IF THE VEHICLE IS EQUIPPED.



FOCUS EQUIPED LCV



RENAULT MASTER E-TECH
100% électrique

RENAULT MASTER III
(2010 - 2024)

EXAMPLE :	VUL-e NEW	RETROFIT
BUY	55 000 €	0
Equipment	6 000 €	0
Conversion	/	34 000 €
Subsidies	Up to 17 000€	Up to 17 000€
TOTAL COST	44 000€	17 000€

26 000 €
savings

* Sources MINISTÈRE DES TRANSPORTS, AIRe, AVERE



WE HAVE BIG SUBSIDIES IN FRANCE

> Up to **9 500€** for Individuals *

> Up to **17 000 €** for Companies*



FRANCE

Prime à la conversion rétrofit (PAC):

Individuals up to 6 000 €*
Entreprises up to 10 000 €*
Camion et bus up to 100 000 €*

Majoration LES / ZFE : +1 000 €*

Government Tender: Sur dossier*



LOCAL

Régions:

Île de France up to 2 500 €*
Grand Est up to 4 000 € (car) / 8 000 € (LCV) / 50 000 € (Heavy)*
Sud (PACA) up to 7 500 €*

Agglomérations :

Grand Reims de 1 000 € à 10 000 €*
Strasbourg up to 2 500 €*
Toulouse up to 4 000 €*
Grenoble up to 12 000 €*
Grand Lyon up to 6 000 €*
Rouen up to 2 000 €*

* As of September 2023, subject to means, place of residence / establishment and file, For + information, you can contact us on contact@rev-mobilities.com



FRENCH GOVERNMENT PLAN

Decarbonisation of transport: launch of a national retrofit action plan in 2023.

After a consultation phase with the sector, the Government is launching an action plan around three priority projects:

- **Regulatory simplification:** Simplifications will be pursued. At the same time, the France will support the definition of a harmonised European framework for retrofit.
- **Strengthening support and bonuses:** the objective is to support the retrofit of vehicles (cars, LCVs, heavy goods vehicles, etc.) via the conversion premium, the tender on electric heavy vehicles, etc. Support will be strengthened in the next budget bill.
- **Support for the development of the retrofit sector:** via calls for projects to support R&D and investments. Development and testing costs to prepare for accreditation may be covered as part of the CORAM 2023 call for projects. A Retrofit Task Force will be set up. <https://presse.economie.gouv.fr/26042023-decarbonation-des-transport-lancement-dun-plan-daction-national-en-faveur-du-retrofit/>

Le plan du gouvernement pour aider le retrofit

Publié le 27 avril 2023 ■ Par Catherine Leroy ■ 3 min de lecture

Suppression de la clause de détention, simplification administrative, renforcement du bonus, soutien à la filière, le gouvernement lance un plan pour développer le retrofit en France. Près de 20 millions de véhicules thermiques seront encore en circulation après 2035, un chiffre qui diminue mais qui reste élevé. Le retrofit est donc une solution clé pour décarboner la filière.



LesEchos

Entreprises Finance - Marchés Bourse Monde Tech-Médias

Automobile : un plan pour soutenir le retrofit

Le gouvernement veut développer cette pratique qui consiste à transformer une voiture thermique en voiture électrique. Malgré les aides publiques, le coût reste le principal frein.

Le Monde

Consultez le journal

ACTUALITÉS ÉCONOMIE VIDÉOS DÉBATS CULTURE LE GOÛT DU MONDE

ÉCONOMIE - INDUSTRIE AUTOMOBILE

Transformer sa voiture thermique en électrique : le retrofit en plein essor

Cette technique qui consiste à changer moteur et réservoir en bloc électrique et batterie permet de limiter les émissions de CO₂ et de maîtriser les coûts d'entretien. Alors que les zones à faibles émissions se développent, les flottes d'entreprise pourraient se laisser convaincre.

Par Eric Silberg
Publié le 26 avril 2023 à 08h00, modifié le 26 avril 2023 à 12h10

auto MOTO ACTUALITÉS NOUVEAUTÉS ESSAIS CONSO OCCASIONS CLASSIQUE SALONS SPORTS DELUXE-BOULEVARD

Retrofit : la nouvelle arme de l'Etat pour accélérer la transition vers le tout-électrique ?



IN SHORT

#DECARBONATENOW



1

ECONOMICAL

2 to 3x cheaper

- That a new electric vehicle is equivalent.
- Equipment and flocking preserved.

Économie à l'usage

- Fewer breakdowns and maintenance.
- Cost of a recharge between 50% and 75%
Cheaper than a full of fuel

2

ECOLOGICAL

Immediate Impact

with a decrease in the carbon footprint. (-61% CO₂)^{**}.

Économie circulaire

with the recycling of used vehicle parts.

No Emission

3

COMFORT

Automatic transmission, reducing health issues.

Noise reduction for peaceful driving.

** estimation : 20 000 km/year,
diesel 1,96€/l and electricity 0,21€/kWh
**Source ADEME*

ABOUT



#DECARBONATENOW

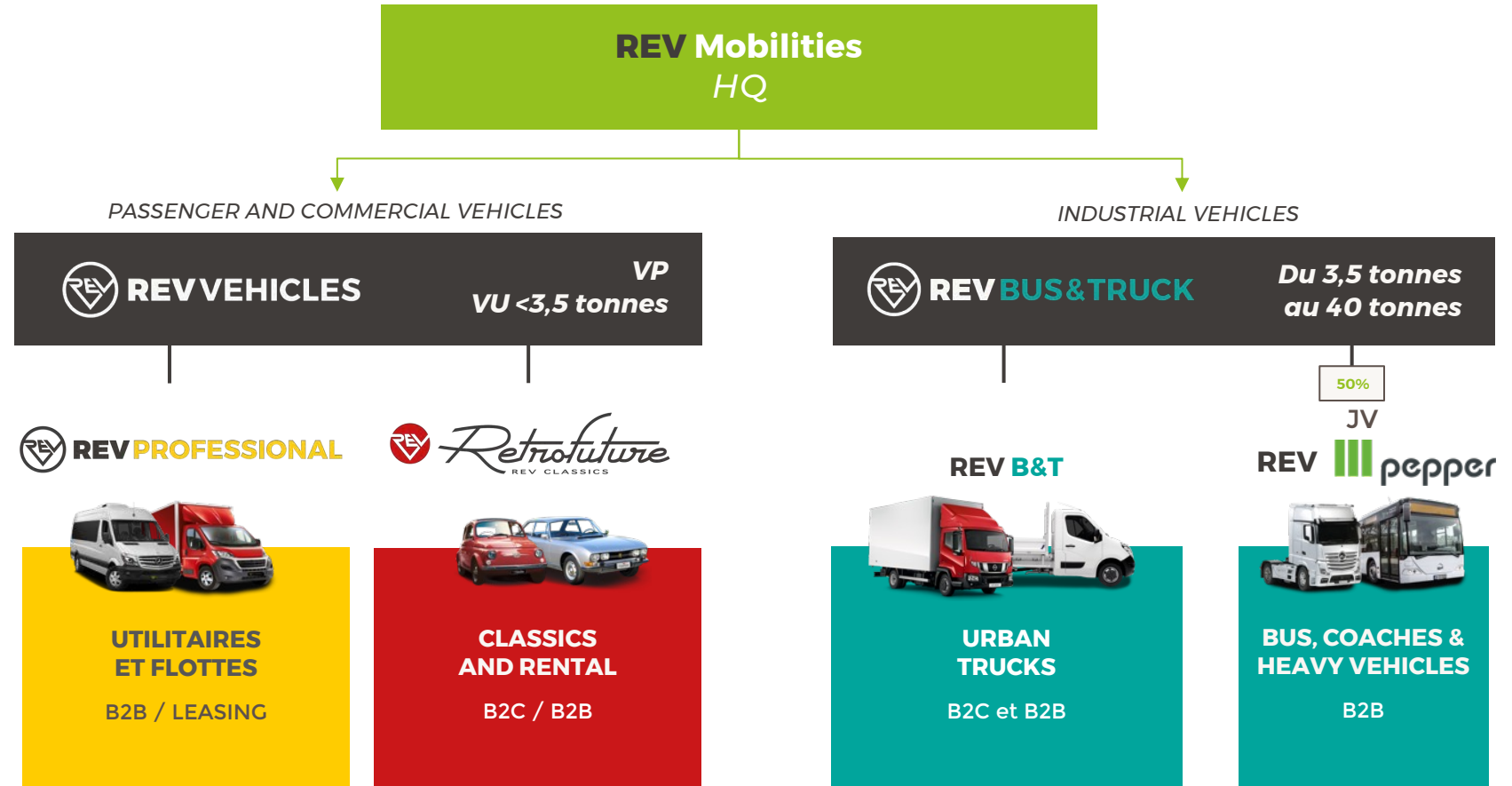
REV MOBILITIES THE BIGGEST RETROFIT COMPANY IN THE 3 BIGGEST MOBILITY SEGMENTS!

MOST EMITTING AND EQUIPPED VEHICLES :

- > PASSENGER CARS,
- > LCVs,
- > HEAVY.

◀ A TOTAL PIPE OF NEARLY 150 MILLIONS D'€

HYDROGEN DEVELOPMENT IN 2025.





N°1 IN DIGITAL AND IN THE MEDIAS

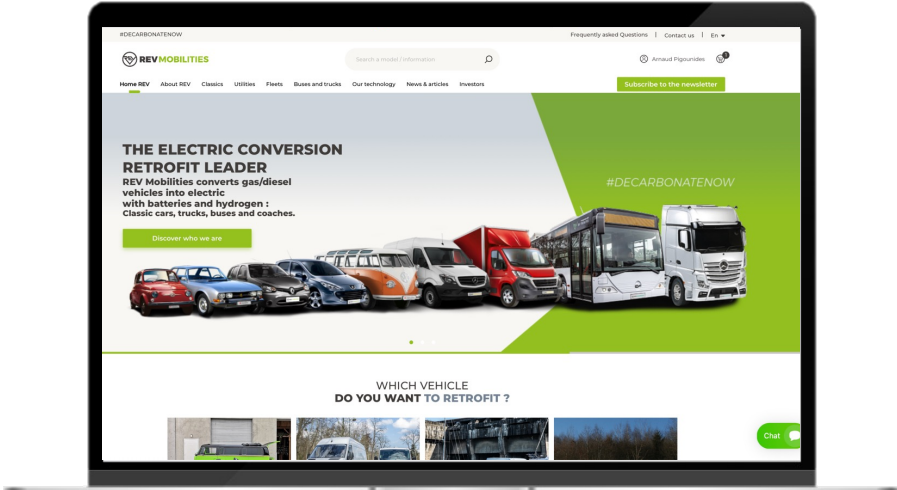
 **MOST SEARCHED RETROFIT BRANDS**

 **2,4 million**
page views

 **600 000**
Total visits

 **500 000**
Unique visitors

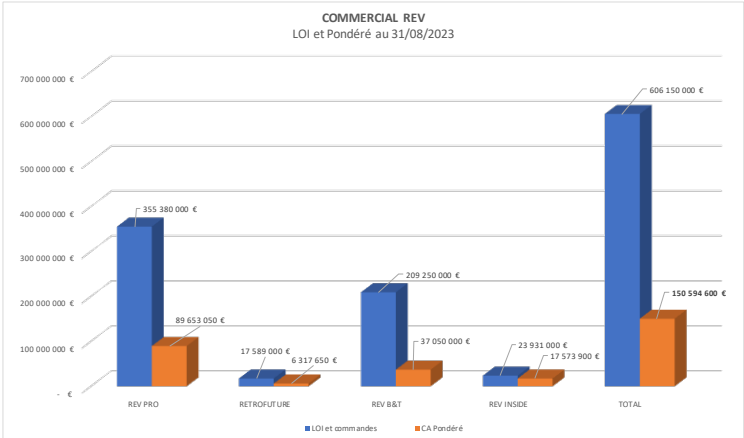
75% France
25% International



 **9 000**
Quotes

 **+3 000**
Vehicle testing

A commercial pipeline > 150M€





46% ARTISANS OF MAPA INSURANCE WANT RETROFIT

Rev Mobilities s'associe à la Mapa pour pousser le retrofit chez les pros de l'alimentaire

Publié le 23 novembre 2021 ■ Par Gredy Raffin ■ 4 min de lecture

A l'occasion de la parution d'une étude réalisée conjointement, le spécialiste du retrofit et la mutuelle des professions de l'alimentaire ont annoncé le lancement d'une offre dès 2022. Rev Mobilities et la Mapa souhaitent accompagner les artisans dans leur transition écologique.



Rev Mobilities et la Mapa ont entériné le lancement d'une offre conjointe de retrofit de VUL dans les mois à venir.

The Mutuelle d'Assurance des Professions Alimentaires (MAPA), created in 1911, wanted to develop a partnership with REV Mobilities in order to offer a retrofit offer to its members.

A survey was then conducted by the company among a representative group of its 120,000 members, who also face economic constraints (increase in fuel prices) and regulatory constraints (access to EPZs).

The figures are clear, nearly one in two members say they are interested in retrofit, and nearly one in four wants to be contacted as soon as an offer is available!

These figures were also confirmed during our roadshow, where professionals, craftsmen and traders came by the hundreds to inquire, or even to place orders with REV Mobilities.

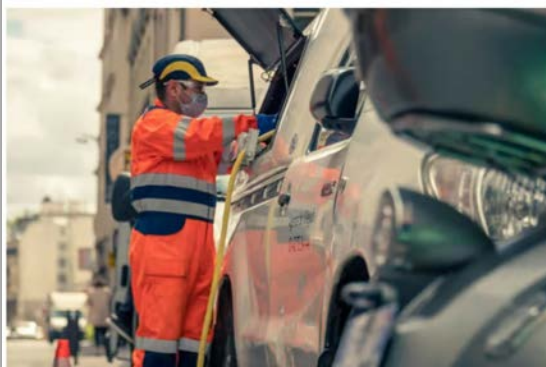


SAPIAN TRANSFORMS ITS FLEET WITH REV PROFESSIONAL

Rétrofit : REV Mobilities va convertir la flotte de Sapian

Publié le 4 avril 2023 ■ Par Gredy Raffin ■ 2 min de lecture

Par le biais de sa filiale REV Professional, le groupe REV Mobilities vient de signer un accord avec la société Sapian. Le contrat porte sur la conversion à l'électrique d'une partie de la flotte de véhicules roulant actuellement au gazole.



Rev Mobilities va convertir à l'électrique une centaine de véhicules utilitaires du groupe Sapian. ©Sapian

SAPIAN, one of the leading players in services dedicated to sanitation, air hygiene, pest control and fire protection throughout France, announces its partnership with REV Professional, the utility and fleet subsidiary of REV Mobilities.

The long-term goal if the technology is relevant for SAPIAN is for REV Professional to retrofit a hundred diesel vehicles from the Sapian fleet with its electric propulsion systems.

This partnership will enable Sapian to adopt a non-polluting and virtuous mobility solution for its travel to the places of intervention, and to gradually green its fleet of commercial vehicles.

The retrofitted vehicles will be equipped with French-designed batteries that will allow autonomy corresponding to the mobility needs of the hygiene company.

The retrofit project for Sapian's commercial vehicle fleet is expected to begin in early 2024.



TRANSPORTATION AUTHORITIES

CALLS REV BUS&TRUCK



The Tignes Resort in the Alps committed to zero carbon

The REV PEPPER MOTION retrofitted bus passed the most drastic practical test: the Tignes station used a diesel bus converted to electric to transport passengers from early February to early March 2023 in difficult conditions, with temperatures down to -10 degrees Celsius and altitude differences of more than 1000 meters.

Tignes, particularly known for its ski resorts located at altitudes ranging from 1550 to 3456 meters, is very committed to the decarbonization of its infrastructure and mobility.

"The test of a retrofitted bus in real operation is convincing and the conversion of our shuttles to electric appears to be an ideal solution to support our commitment to Zero Carbon" says Julien Beltrami, Director of Operations at STEM.

___The bus ran for up to seven hours a day thanks to a 240 kWh battery system, to the great satisfaction of the local transport operator STGM (Sociétés des Téléphériques de la Grande Motte).





OUR 3 LEADING BRANDS

Across the three major
mobility segments





Retrofit your own LCV fleet,
especially if they have an expensive equipment!



ELECTRIC RETROFIT FOR YOUR OWN FLEET.

Small LCVs



Starting 19 000€ HT*

Middle LCV's



Starting 23 000€ HT*

Big LCV's



Starting 26 000€ HT*

More information on
www.rev-professional.com

#DECARBONATENOW

Change the world, with style.

**RETROFUTURE,
THE RETROFIT BRAND
FOR CLASSIC AND VINTAGE CARS.**

Convert to electric
the car of your heart.

From the mythical Fiat 500 to the Defender adventurer through the eternal VW Combi and small pleasure cabriolets MG-B and Triumph Spitfire, discover our range of 15 exclusive retrofitted Retrofuture cars.

More information on
www.retrofuture-ev.com



 *Retrofuture*
REV CLASSICS

ELECTRIFY TRANSPORTATION!

AND SAVE THE WORLD.



RETROFIT FOR BUS, COACH AND TRUCKS

Communities, transport and logistics companies, we support you in your environmental transition thanks to our catalog of electric retrofit with batteries and hydrogen.



More information on
www.rev-mobilities.com

#DECARBONATENOW

WE SELL OUR KITS AND BATTERIES
TO PARTNERS WORLDWIDE

REV Inside kits

The only and unique on the market
plug-and-play innovative retrofit
solution with the highest modularity
and safety, at the lowest and fair cost...



More information on
www.rev-mobilities.com

TO DECARBONATE
MASSIVELY.

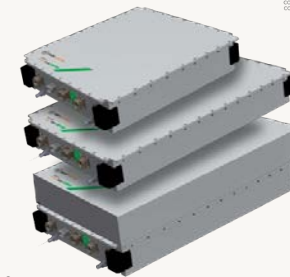


REV Inside developed
4 powertrain systems
for the **4 main segments**

1 sys-REV 1 SMALL VEHICLES Segment A Little cars and small classics	2 sys-REV 2 MIDDLE VEHICLES Segment B, C Utilities and middle classics	3 sys-REV 3 LARGE VEHICLES Segment D Big cars, Utilities, vans, big classics	4 sys-REV pepper HEAVY VEHICLES Bus, Coach, Trucks, Offroad
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And 4 PowerREV Modular batteries

2.2 kWh / 4.4 kWh
8.8 kWh / 17.6 kWh
(R100-2 / IP67)
With multi-voltage



21 combinations possible
Never seen on the market

TYPES OF BATTERIES	17.6 kWh		26.4 kWh		35.2 kWh			44 kWh		52.8 kWh			70.4 kWh		
	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
	SETUP		SETUP		SETUPS			SETUP		SETUPS			SETUPS		
→	S	S	M	S	S	M	M	S	M	M	M	S	L	L	L
→	S	M	S	M	S	S	M	M	M	M	M	L	M	L	L
→	S	M	S	S	S	S	M	M	M	M	M	M	M	M	M

NEXT 10 YEARS IMPACT OF REV GREENING

300 000
RETROFITS

4 MILLION TONS
GHG Eq. CO2 SAVED

1 400
JOBS



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#DECARBONATENOW