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SOLUTRANS 2023:
NEW ENERGIES AT THE CENTRE OF THE INDUSTRY'S CONCERNS

For its 18th edition, the tradeshow SOLUTRANS will bring together the commercial vehicle world around sustainable solutions for a greener transport sector. The subject of the energy transition will be at the forefront, with a comparative overview of the solutions developed to decarbonise the transport sector, and a programme of talks, round tables, panel discussions and workshops to enlighten industry stakeholders. All of this, without any preconceptions.

What technologies do professionals have at their disposal? What new energy sources can they turn to depending on the uses; what is the financial impact for the companies?

All these questions are stoking the debate in an industry facing major challenges, but one that is on a march towards the transition.

DECARBONISATION: TARGETS TO REACH, BUT AT WHAT COST?

Today, the haulage sector in France accounts for approximately 30% of greenhouse gas emissions. By 2040, it must reduce these emissions by approximately 90%.

This target, set by the European Commission, appears today to be extremely stringent for professionals, even if the leading truck manufacturers claim to be able to generate 50% of their sales in Europe from electric heavy goods vehicles by 2030.

Diesel powertrains are clearly in the sights of policymakers, but diesel is still used for 98% of goods transportation today. And yet, the new transport decarbonisation targets require manufacturers to modify their vehicles and set out a roadmap. They also oblige transporters to reorganise their working plans to adapt to the recommendation of LEZ, which must be introduced in France in all cities of more than 150,000 inhabitants by 2025.

This sector is therefore destined to transition from a mainly diesel fleet to a multi-energy fleet, which will impact companies' logistics, human resources and finances.

NEW ENERGIES: THE REALM OF POSSIBILITIES

To renew their fleet with less polluting vehicles fitted with new energy sources, professionals need to be enlightened on the alternative solutions. SOLUTRANS 2023 will fully play its part in November. Certain solutions are already emerging, and not all have the same reach in the short, medium and long-term, depending on whether they apply to urban, intercity or international transport. Carriers will choose the energy source depending on their needs. Among the energies that appear to be unavoidable are the following:

- **ELECTRIC**

  In recent years, electrification has accelerated for personal cars and appears now to be gaining ground in the road transport sector. It is estimated that there are 75,600 light commercial vehicles in the fleet of electric vehicles as at 1 January 2023, along with 320 electric heavy goods vehicles. (*Source ANFA barometer)*
  In 2022, 16,875 electric light commercial vehicles were sold, compared with only 136 electric trucks. *(Source: NGC-DATA and Avere)*

  Advantages and drawbacks:

  While an electric powertrain has many advantages, it also has a few limitations.

  - **The current range of electric trucks:** standing somewhere between 140 and 200 km, this does not allow for long journeys and requires daily charging.

  ➔ The deployment of fast chargers across the country is therefore crucial.
  An agreement struck by the European Union on 28 March 2023 specifies that by 2030, countries must install charging capacities for trucks of at least 3600 kW every 60 km along the main European motorways.

  - **Transporters' logistical plans:** these must be entirely redesigned to take account of this reduced range.
  - **Purchasing costs: 2 to 3 times more than that of a diesel truck** with however an operating cost per kilometre 50% lower paired with a diesel truck, which partly helps to offset the extra cost of acquisition.

  In conclusion, it is for professionals to ascertain whether the range and charging time are key factors in their constraints when they choose their energy source. It appears that in urban and suburban areas, electric power trains can be a solution today, in the shift to decarbonisation. Manufacturers hope that by 2030, electric trucks will represent 40 to 50% of their sales.

Worth noting

In April 2023, the French government launched a call for projects entitled **"Electric heavy goods vehicle ecosystems"** aiming to support the acquisition of electric trucks and coaches and install charging points suited to their use, with an envelope of **€60 million** of which 91% is exclusively earmarked for road transportation, with the rest channelled towards coaches.

Thanks to this call for projects led by the French environment agency ADEME, **it is planned to facilitate the acquisition of more than 500 electric heavy goods vehicles** which will contribute to accelerating the decarbonisation of the transport sector.

- **AMONG BIOFUELS, FOCUS ON B100**

B100, a biofuel based on vegetable oil including rapeseed, is compatible with diesel powertrains bearing the standard EN14214, aimed at captive heavy duty vehicle fleets of more than 3.5 tonnes (trucks, coaches, buses, construction machinery, etc.). It offers the advantage of immediately replacing diesel, while remaining miscible and reversible with it.
Some manufacturers are already marketing powertrains exclusively with B100, and more than 2,000 trucks run on B100 in France.

Advantages and drawbacks**:**

While the use of B100 appears to be less polluting, current regulations do not make it possible to clarify its benefits in terms of use, and there remain certain moot questions, notably their Crit'AIR classification and whether they are allowed to travel in LEZ.

It is a known fact however that its use can offer a range comparable to that of diesel, and that it emits 60% less carbon dioxide and 80% less particulate matter.
However, B100 still presents several drawbacks in its use. It requires resources in sufficient quantity to produce it, which is not the case today. Furthermore, as B100 is not available in filling stations, transporters wishing to use it must have their own private tank in which to store it.

In view of these constraints, B100 does not appear yet to fulfil all needs in terms of consumption, except in the short term for urban applications.

- **HYDROGEN**

In research stage in Europe and France, zero carbon hydrogen is seen as an energy of the future to decarbonise heavy mobility. But how does this energy function? What are its benefits for goods haulage, and does it fulfil the challenges of the energy transition?

Hydrogen can be used in two ways:
- in an existing electric vehicle, replacing the battery with a hydrogen tank and a fuel cell which will generate electricity instead of the battery.
- in a fossil fuel vehicle, through retrofitting.

Advantages and drawbacks**:**

In the perspective of the decarbonisation of the transport sector, hydrogen displays multiple advantages:
- CO_2 emissions at the level of the vehicle itself;
- A storage capacity which is substantial and higher than the electric battery;
- Substantial range for captive fleets travelling long distances;
- A refuelling time equivalent to that of a fossil fuel engine.

However, its development will depend on meeting several major challenges:
- Installation of an efficient refuelling infrastructure;
- The decarbonisation of hydrogen by focusing on water electrolysis production, biomass gasification or the residual waste from chlorine manufacture;
- The development of manufacturing offerings;
- A significant drop in the cost of components but also of green hydrogen at the pump.

Green hydrogen under scrutiny:

Trucks running on fuel cells can reduce carbon dioxide emissions by 85%, but only if the hydrogen used is produced using renewable energy, which remains extremely rare.
It is therefore necessary to produce "green" hydrogen to power the fuel cells which will replace batteries; this poses a dual problem:

- Green hydrogen is very energy intensive for mass production, not only is the process complex but its ecological virtues are strongly dependent on its origin.
- Green hydrogen is very expensive and can only be deployed on the condition that costs are reduced along the entire supply chain starting with the cost of production of renewable electricity (solar, wind) but also that of electrolysers or fuel cells.

Buying hydrogen powered trucks currently costs twice as much as a fossil fuel vehicle, which could jeopardise certain transport companies that might not have the necessary financing to replace their fleets.

- **CNG**

Compressed natural gas, CNG, or biomethane, is a gas obtained through anaerobic digestion, therefore from the recovery and reuse of agricultural waste and green waste. It is considered a renewable energy source and represents an excellent alternative to diesel. According to the assumptions, the number of trucks powered by CNG will rise from 8,000 vehicles in 2022 to 32,000 in 2025, and could even reach 77,000 in 2030, with energy needs ranging from 5 to 11 TWh.

Advantages and drawbacks:

- CNG generates 37% less carbon dioxide, 70% less nitrous oxide and 84% less particulate matter than the other fuels;
- It has the specificity, just like other biofuels such as ethanol E85, of being able to be mixed in ever larger proportions with a fossil fuel;
- Cost: it is 60 cents cheaper per litre than diesel, and the price of a CNG powered LCV is much lower than that of an electric truck;
- CNG causes less soiling of the engine, therefore the vehicle requires less maintenance;
- It offers a long range.

Its main disadvantage is the lack of refuelling infrastructure. There are currently 290 filling stations in France. (*Source: AFGNV*)

- **FOSSIL FUEL RETROFITTING**

Retrofitting is an energy mix solution suited to LCVs and HGVs in an urban environment. It consists of replacing a fossil fuel engine with a less polluting electric, gas or hydrogen alternative.

Even if the **electric retrofit** is currently the most frequent, **hydrogen retrofitting** is starting to take off and could potentially see an ambitious industrial ramp up in the years to come in particular if it benefits from the development of refuelling stations.
Hydrogen retrofitting consists of initially converting a fossil fuel vehicle to an electric one. The electric engine is thus powered by a battery pack to which a fuel cell and hydrogen tanks are then added. The size of the hydrogen tank or the power of the fuel cell will change depending on the type of vehicle and its use. The energy needed is therefore measured so as to estimate whether the solution is suited to the daily use of the vehicle.

Advantages and drawbacks:

- Electric retrofitting helps to reduce the quantity of carbon dioxide and air pollutants emitted during everyday travel;
- Retrofitting vehicles are not banned by low emission zones;
- The cost of retrofitting is lower than buying a new electric vehicle.

The main drawbacks remain those of standard electric vehicles, namely:

- Limited range
- Lack of charging infrastructure.

Worth noting: in April 2022, the French Ministry for the Ecological Transition announced an electric retrofitting bonus for trucks. The grant amounts to 40% of the cost of the conversion (from fossil fuel to electric) up to a ceiling of 50,000 euros.

THE TRANSITION UNDER THE SPOTLIGHT AT SOLUTRANS

With its status as a global event for the industry, SOLUTRANS 2023 will be fully playing its role by enlightening the sector's professionals on all the existing solutions. As a showcase for the vitality of the industry, the show will be a 5-day hive of information through workshops, special features and talks, all organised to give professionals food for thought and enable them to anticipate the challenges that lie ahead.

A customer journey in three fundamental steps

Because the purchase of a vehicle addresses several identified needs, SOLUTRANS 2023 offers professionals a guided tour:

- **STEP 1 – ENERGY WORKSHOPS:** These are thematic pitches organised each day for 35 minutes, designed to introduce alternative energy solutions to diesel. Electric, gas, hydrogen, biofuels and retrofits are dissected by their designers in order to introduce them to tomorrow's clients.
- **STEP 2 - ROAD TESTING VILLAGE:** Unique in Europe! SOLUTRANS is hosting two test tracks, dedicated to combustion vehicles and "new energy" vehicles, still located behind Hall 4. But this year, the exhibitors who provide the vehicles will benefit from an exceptional feature with the creation of the eco-friendly "road testing village". These chalets are designed from reconditioned refrigerated semi-trailers, insulated and fitted out to provide comfortable and welcoming low-energy spaces for the exhibitors' teams. The wood used to clad the chalets is bio-sourced and low-carbon, and this partner's project is supported by the French environment agency ADEME.
- **STEP 3 – A BANKING AND INSURANCE SPACE:** Once the vehicle has been chosen and tested, it is time to go to this special space in the heart of Hall 6. Vehicle prices are rising, and people need to know how to finance and insure them. The question of leasing also arises. All the players in the sector will be present to advise and help professionals in this field.

A programme of theme-based talks and workshops on new energy sources

- **TUESDAY 21 NOVEMBER:**
  On the agenda of the plenary conference, the transformations in the HGV and LCV industry with respect to the green transition, with the latest iteration of the VIsion'AIR report by the FFC.

  This study provides an analysis of the powertrain mix from several perspectives, and their carbon contribution. It will allow all industry professionals to anticipate and get in step with their strategy and the latest regulatory targets.
- **WEDNESDAY 22 NOVEMBER:**
  Retrofitting, an energy mix solution for LCVs in the city centre

- **WEDNESDAY 22, THURSDAY 23 AND FRIDAY 24 NOVEMBER:**
  How to finance my zero-emission truck – in three parts
- **THURSDAY 23 NOVEMBER:**
  Energy transition, what issues for road haulage and its infrastructure?

About SOLUTRANS

SOLUTRANS: THE GLOBAL HUB FOR HEAVY & LIGHT COMMERCIAL VEHICLES

SOLUTRANS, bringing together market players from across the heavy and light commercial vehicle industry, will hold its 17th edition from 21 to 25 November 2023 at Lyon Eurexpo, France.

The event, belonging to the French Bodywork Federation FFC and certified by the International Organization of Motor Vehicle Manufacturers (OICA), brings together, over 90,000 sqm, nearly 50,000 professionals along with 1,000 exhibitors and brands from all over the world, under a shared banner: "Energy transition: all players in a greener industry."

SOLUTRANS is the two-yearly rendezvous of one of the most innovative sector verticals, from industry to services. Global economic conditions make SOLUTRANS a showcase for the exceptional performances of HGV builders, bodywork manufacturers, vehicle fitters, OEMs, manufacturers of workshop equipment, tyre professionals and distribution networks.

SOLUTRANS also aims to echo the challenges of the sector, with a specific focus on energy sources, retrofitting, city centre deliveries and its constraints, etc. Moreover, this year the show will present its vision of the "last yard", with an approach centring on city centre access restrictions, and low emission zones in particular. New delivery methods, notably cargo bikes, which are becoming a part of the transport ecosystem, will have a large educational and test area allotted to them in the centre of Hall 1.

With its status as a global industry event, SOLUTRANS has set itself the goals of supporting the industrial sector, promoting solutions to professionals, and anticipating the challenges that lie ahead.

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