



French Bodywork Federation
Industry and Services



FFC / BIPE Vision'AIR report

In a fast-changing transport sector, what is the outlook for the energy mix for heavy commercial vehicles between now and 2040 in Europe? The Vision'AIR survey conducted by FFC in association with the consultants BIPE (member of BDO), aims to analyse, year by year, changes for each vehicle type, use case and powertrain. The main findings will be revealed at a plenary talk on 16 November at 2.30 pm at the tradeshow SOLUTRANS (Eurexpo Lyon, from 16 to 20 November 2021).

A robust and proven methodology

To anticipate the long-term powertrain mix of heavy commercial vehicles, BIPE developed a mathematical modelling-focussed approach based on using the TCO (Total Cost of Ownership) of future powertrains. The principles of this approach are proven and acknowledged, and similar to those used in the annual work carried out for the automotive sector (the WAPO model).

The TCO variables used in the model were constructed with the aid of a consortium of participants from the upstream (manufacturers, equipment suppliers) and downstream (commercial vehicle purchasers, energy suppliers) sectors.

The cost assumptions communicated to BIPE by each participant were subject to strict confidentiality: only the aggregated and averaged assumptions were shared.

Segmentations considered

- The Vision'Air model is built for an **aggregated geographical perimeter corresponding to Europe**. As such, the segmentation chosen is that defined by Europe in its VECTO tool, measuring heavy goods vehicle emissions, making it possible to calculate the trend in CO2 emissions in compliance with the European standard.

- **Vehicle segments:** in view of the European targets for new HGV emissions reductions, it was decided to run the model using the segmentation used by the European Union to measure these emissions, i.e. 18 categories of HGVs >3.5t, 4 of which are already concerned by the 2025 targets (4x2 >16 tonnes GVWR and 6x2 across all GVWR, Carriers and Tractors);

- **Use case segments:** the model encompasses the main use cases, i.e., city centre delivery, same-region delivery; long-distance haulage, municipal services and construction.

- **Powertrain segments:** the model encompasses the powertrains and architectures put forward by the upstream sector participants.

TCO cost headings taken into consideration

- **Purchasing costs:** cost of acquisition of powertrain, residual value, purchasing tax incentives.

- **Use costs:** energy and fuel costs (depending on consumption and mileage, including taxes), maintenance and servicing, insurance, ownership of vehicles and equipment, downtime due to refuelling.



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In conclusion, the advantages of the method

- Unlike certain conventional methods that explain future developments in qualitative terms, this modelling allows for the **quantification of variations in the market share of heavy-duty vehicle powertrains**. This quantification generates figures that help readers understand the relative importance of future powertrains.
- Total Cost of Ownership modelling has the particularity of simulating a "natural" market trend, starting from the current state of play and calculating the **future variation of relative costs, taking into account the constraints of users and offering a practical vision of the future market**.
- The fundamental benefit of BIPE-BDO's TCO approach lies in **the involvement of all the stakeholders along the value chain**, i.e., vehicle builders and OEMs, who are thus able to anticipate the costs of future powertrains, and hauliers, rental firms, city authorities, etc., whose future powertrain choices will be dictated by use cases.
- Finally, the findings are a good starting point from which to build a roadmap between public authorities and energy providers for the purpose-driven development of refuelling infrastructure for each of the energy sources depending on how the HGV energy mix evolves in the future.

Reminder: the main findings will be revealed at a plenary talk on 16 November 2021 at 2.30 pm in the Norbert Detoux Lecture Theatre at the tradeshow SOLUTRANS (SOLUTRANS 2021- Eurexpo Lyon, from 16 to 20 November 2021).