

## Reducing oil dependence in the EU through applied measures for trucks and buses

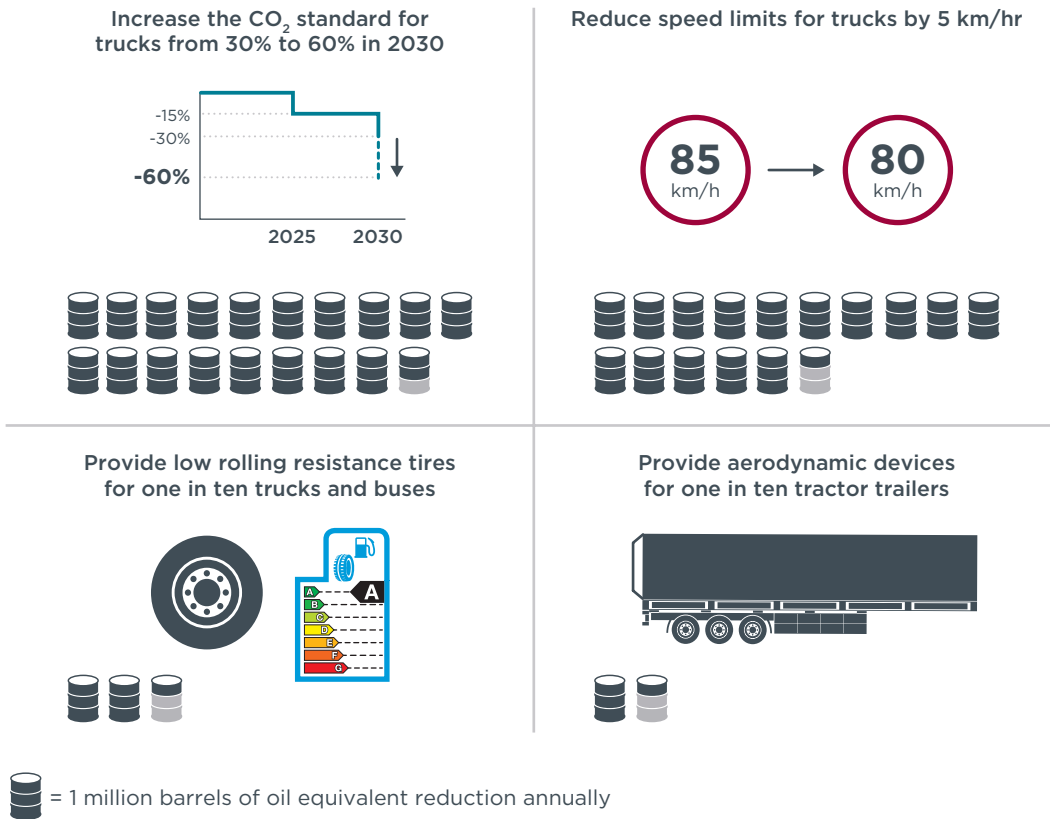
**Eamonn Mulholland and Felipe Rodríguez**

The European Union (EU) produces just 3% of the oil it consumes. The remaining 97% is imported from beyond the EU's borders, with one quarter of these oil supplies imported directly from Russia. As a means of increasing Europe's energy independence, the European Commission will release its RePowerEU in May, outlining measures to phase out imports of Russian energy supplies by 2027. The European Commission has also proposed a plan to cease the imports of crude oil from Russia within six months, and by the end of the year for refined oil.

Trucks and buses in the EU represent just 2.5% of the total stock of vehicles on the road, yet they're responsible for 21% of total annual oil consumption. CO<sub>2</sub> standards are currently in place to reduce emissions and fossil fuel use from trucks in the long-term, however increasing levels of activity sees little real reduction in energy consumption in the short-term. A variety of measures can be implemented this year to reduce oil consumption from trucks and buses both immediately and by 2027. Such measures include:

- » Increasing the CO<sub>2</sub> standards emission reduction from 30% to 60% in 2030 in the upcoming revision.
- » Reducing the speed limit of all trucks and buses by 5 km/h.
- » Establishing a funding mechanism for the provision of low rolling resistance tires to one in ten vehicles.
- » Establishing a funding mechanism for the provision of aerodynamic devices to one in ten trailers used in long-haul transport.

The combination of these measures would reduce the EU's annual oil consumption by 37.5 million barrels of oil equivalent by 2027, or a **7% reduction over current consumption levels in the HDV sector**. Over the period 2022-2027, this would result in an overall reduction of 160 million barrels of oil equivalent, with 91 million barrels of oil equivalent attributable to reducing the speed limit by 5 km/hr.



**Figure 1.** Measures to reduce oil dependence from trucks and buses in Europe. Oil reductions from increasing the CO<sub>2</sub> standard relate to the year 2027. All other measures would take immediate effect.

## INCREASE THE STRINGENCY OF THE CO<sub>2</sub> STANDARDS

CO<sub>2</sub> standards were first introduced for trucks and buses in 2019, requiring an emissions reduction of 15% by 2025 and 30% by 2030 relative to 2020 for most trucks sold. However, the potential emissions reduction from the standards is largely offset by increasing levels of activity, meaning only slight reductions in emissions and oil consumption will be achieved in the short term. The standards will be reviewed by the end of this year, which presents an opportunity to increase the stringency of the targets.

Manufacturers have already committed to increasing the deployment of zero-emission vehicles at a level that goes significantly beyond the requirements of the standard. To turn these commitments into binding regulation, the CO<sub>2</sub> standard should be increased from 30% to 60% in 2030 and extended to cover all trucks and buses. **This would reduce annual oil consumption by 19 million barrels of oil by 2027**, or 4% relative to the baseline.

## REDUCE THE SPEED LIMIT FOR TRUCKS BY 5 KM/HR

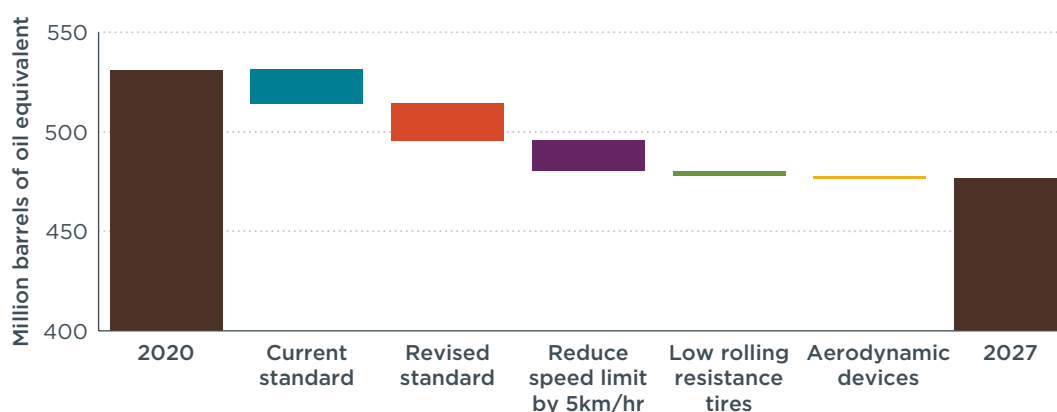
At high speeds, a vehicle is subject to greater levels of air drag due to increased wind resistance, which can result in reduced fuel economy. Heavy trucks are subject to speed limits in Europe, largely falling between 80 and 90 km/hr on motorways. Reducing these speed limits by as little as a 5 km/hr results in fuel economy improvements between 3% and 5% for long-haul applications, and between 1.5% and 3% for regional applications. Reducing the speed limits for trucks would **immediately reduce annual fuel consumption by 15 million barrels of oil equivalent**, or 3% relative to the baseline in 2027. Reducing speed limits has the advantage of taking immediate effect, whereas the benefits from increasing the CO<sub>2</sub> standards will not come to fruition until closer to 2025.

## PROVIDE LOW ROLLING RESISTANCE TIRES TO ONE IN TEN VEHICLES

Tires are a significant factor in vehicle engine power requirements and overall energy efficiency due to the rolling resistance encountered while in operation. The effectiveness of a tire's operation is measured by its rolling resistance coefficient, a dimensionless factor (in units of N/kN) representing the countering force from the tire's rotation. Introducing low rolling resistance tires, which reduce the rolling resistance coefficient by 1 N/kN, would improve overall vehicle efficiency by 5%–6% for a regional delivery truck and by 3%–4.5% for a long-haul truck. Providing tires for one in ten trucks and buses would **reduce oil consumption by 2.5 million barrels of oil equivalent per year**, or 0.5% in 2027 relative to the baseline. The incremental cost of low rolling resistance tires over conventional ones ranges between €375 and €500 per vehicle (in 2020 values), or €185 to €250 million to supply one tenth of all trucks and buses in operation in the EU.

## PROVIDE AERODYNAMIC DEVICES TO ONE IN TEN LONG-HAUL TRAILERS

A vehicle's aerodynamic drag can significantly affect fuel economy. Aerodynamic drag can be reduced through altering its overall geometry, such as by including side skirts and other lateral devices that protect the sides of a trailer, or a boat tail which protrudes the rear of the vehicles. This is particularly applicable to long-haul trucks travelling on motorways operating at a constant velocity. Reducing a tractor-trailer's coefficient of drag times its area (or CdA) by 1m<sup>2</sup> by deploying a combination of side skirts and boat tails would improve the vehicle's efficiency by 4.5% in a long-haul application and 3% in a regional delivery application. Establishing a funding mechanism to enable the provision of these aerodynamic devices for one in ten tractor trailers would **reduce oil consumption by 1 million barrels of oil equivalent per year**, or 0.25% in 2027 relative to the baseline. Improving the aerodynamic drag of long-haul tractor trailers in the EU would cost €1850–€3100 per vehicle, or €600–€1,000 million to supply one tenth of all tractor trailers.



**Figure 2.** Cumulative fuel reduction benefits from combined measures.

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## FURTHER READING

The CO<sub>2</sub> standards required for trucks and buses for Europe to meet its climate targets, ICCT White Paper, March 2022, <https://theicct.org/publication/hdv-co2standards-recs-mar22/>.

Trailer CO<sub>2</sub> certification in the European Union, ICCT Working Paper, September 2018, <https://theicct.org/publication/trailer-co2-certification-in-the-european-union/>.

Technology verification tool for green freight programs, ICCT White Paper, March 2019, <https://theicct.org/publication/technology-verification-tool-for-green-freight-programs/>.

EU HDVs: Cost effectiveness of fuel efficiency technologies for long-haul tractor-trailers in the 2025-2030 timeframe, ICCT White Paper, January 2018, <https://theicct.org/publication/eu-hdvs-cost-effectiveness-of-fuel-efficiency-technologies-for-long-haul-tractor-trailers-in-the-2025-2030-timeframe/>.

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