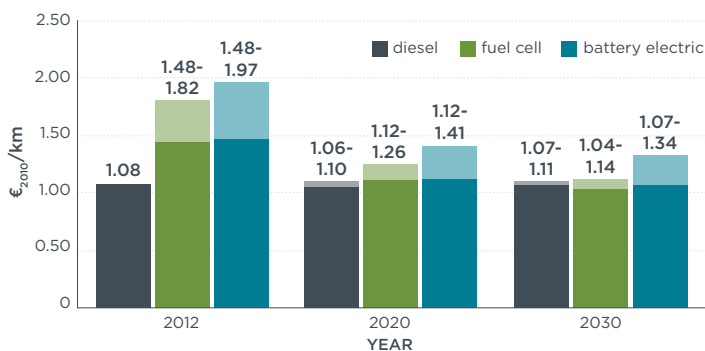


ZERO-EMISSION TRUCKS: AN OVERVIEW OF THE STATE-OF-THE-ART TECHNOLOGIES AND THEIR POTENTIAL

Significant emission reductions from the road freight transport sector are needed to meet Europe's climate goals. But policies targeting fuel efficiency and greenhouse gas emissions for heavy-duty vehicles do not reflect that urgent need, and lag those for passenger cars and vans. A new report by CE Delft (Netherlands) and the German Aerospace Center (DLR), commissioned by the International Council on Clean Transportation, surveys the technology potential for zero-emission road freight transport in the EU.

ELECTRIC AND FUEL CELL HDVS CAN WORK IN VARIED SITUATIONS

- » For short distance transport, battery electric technology is feasible, as distribution trucks have lower range requirements and recharging can occur at scheduled downtimes (e.g. overnight).
- » For long haul applications, battery electric vehicles coupled with overhead wires (catenary) or in-road charging (dynamic) infrastructure are possible.

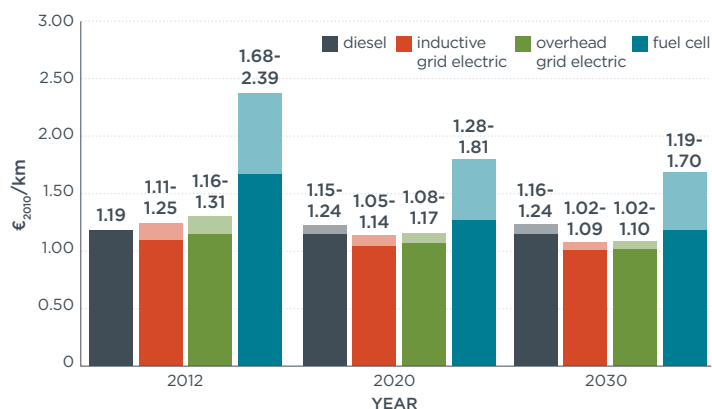


Total cost of ownership, distribution trucks

- » Fuel cell trucks may be better suited to long haul applications in the longer term, because of their comparatively greater range.
- » All electric-drive HDV technologies will require major infrastructure investments, whether hydrogen refueling stations, in-road inductive charging, or other systems.

TOTAL COSTS OF OWNERSHIP WILL CONVERGE IN COMING DECADES

The cost differential between conventional and zero-emission HDVs will diminish over the next 10–15 years, as fuel savings offset other costs. If zero-emission technologies are introduced on a large scale in the on-road freight transport sector beginning in 2020, the total end-user costs will not significantly increase. The total cost of ownership within this study do not consider required infrastructure investments.



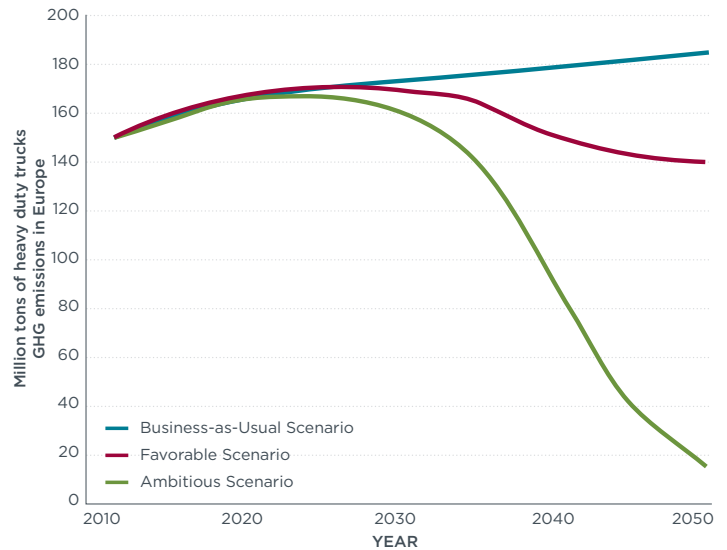
Total cost of ownership, long haul trucks

DEEP EMISSION REDUCTIONS ARE POSSIBLE

GHG emissions from truck transport in the EU are on track to rise by 23% through 2050. By increasing the share of total ton-kilometers transported by alternative vehicles to 50%, GHG emissions in 2050 would decrease by 7% compared to 2012. Raising alternative vehicles' share to 90% can result in an emissions reduction of 90% from EU heavy-duty vehicles, effectively decarbonising the on-road freight transport sector.

POLICIES ARE CRITICAL

It is not yet possible to say which of these technologies—electric-drive battery, charging, and fuel cell—is most likely to achieve large-scale fleet deployment. Therefore broad policy support is needed to encourage the development and evaluation of various technology options. Over time, a the policy focus must shift from stimulating innovation and technology adoption to regulation, if it is to spur a successful transformation of the HDV market.



EU-27 Well-to-Wheel greenhouse gas (GHG) emission scenario development¹

¹ The business-as-usual trendline represents a conservative scenario, in which long haul diesel drivetrains have 100% tkm share and short haul hybrid drivetrains have 10% tkm share until 2050. Alternative vehicles like BEV and FCHEV will not penetrate the market until 2050. Alternative 1 represents a favorable scenario, in which alternative vehicles reach a combined tkm share of 56% by 2050. Alternative 2 represents an ambitious scenario, in which alternative vehicles reach a combined tkm share of 93% by 2050. *Well-to-Wheel* refers to the emission associated with fuel production as well as with vehicle use.

DOWNLOAD Zero Emission Trucks [PDF]: <http://theicct.org/zero-emission-trucks>

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