# Accelerating zero-emission truck sales

Position paper on the Weights & Dimensions Directive

October 2023

## Summary

In July 2023, the European Commission published the 'Greening Freight Transport' package, with the aim of making freight transport more sustainable. Trucks play a major role in EU road transport emissions. Although they only represent 2% of vehicles on the road, they account for nearly 30% of emissions. If the EU is to achieve its 2050 climate neutrality target, the EU truck fleet needs to be rapidly decarbonised.

Zero-emission trucks (ZEVs) can however be heavier and take more space than internal combustion vehicles (ICE). In 2019, they were therefore allowed to weigh 2 tonnes more in some use cases. While this was sufficient for urban and most regional delivery trucks, some ZEV designs for long-distance trucking require more weight, as they are fitted with heavier batteries. Within the package, the review of the Weights and Dimensions (W&D) Directive aims to grant this further weight increase to ZEVs. By providing non-monetary incentives for zero-emission trucks and buses, the W&D Directive is thereby critical to stimulate zero-emission vehicle demand and steer investments. The Directive further offers a - currently untabbed - opportunity to limit the growth of SUV and pick-up truck sales in the light-duty market segment.

**The shortcomings of the Commission proposal**

The revision of the W&D Directive aims to ensure ZE trucks don't have to sacrifice cargo weight when they serve long-haul routes. The proposal however prevents ZEVs from making use of this additional weight in major use cases, and grants further comparative advantages to diesel trucks. If not amended, the proposal risks exacerbating the dominance of diesel trucks in the EU.

**1. Many zero-emission trucks won't be able to make use of the new 4t weight allowance, while some diesel trucks could increase payload by 4t**

A 4t weight allowance for ZE trucks is proposed, but:

- EU states that have a 44t national limit for internal combustion trucks (e.g. FR and BE) would be required to also permit entry of 44t combustion trucks from neighbouring countries. Since 44t is set as the maximum for all vehicles (except for those involved in intermodal operations), ZE trucks heavier than 40t would be unable to fully use the 4t allowance, unless sacrificing cargo. This makes it impossible for them to compete with their diesel counterparts. On the other hand, diesel trucks gain 4t of payload between 'allowing' countries'.
- The 4t risks being granted to too many trucks. For example, an ICE tractor unit could be claimed eligible just because it pulls an electric trailer.
- The Commission should further clarify in the legal text that the 4t for ZE trucks apply not only to cross-border movements, but also when they exclusively run within national borders, given that stakeholders have different readings of the scope of application.

**2. The 1t increase to the driving axle weight will cause excessive road wear and slow-down the shift to lighter and more efficient e-truck designs**

Today a trucks' driving axle weight is capped at 11.5t. This needs to be temporarily increased, as legacy truckmakers are currently just fitting the heavier batteries required for ZEVs on their existing diesel truck designs. When ZE truck production scales up, they should be incentivised to optimise the design, making trucks lighter. Battery innovation will also continue to make batteries lighter, and lighter materials can be used elsewhere in the production. The 1t driving axle increase proposed by the Commission (to 12.5t) however goes further than what manufacturers actually need. This excessively increases road wear (by 40%) and delays this shift to so-called 'clean sheet designs'. Co-legislators should therefore:

- limit the increase to 12t (+0.5t),
- insert a sunset clause for ZE trucks (2029) and buses (2035),
- and include safeguards on tyres and acceleration to limit road wear.

**3. European Modular Systems not incentivised to go zero-emission and weak safeguards**

The Commission requires member states that allow European Modular Systems (so-called 'gigaliners') domestically to also accept their entry from neighbouring countries. Unfortunately, the proposal does not include any sunset clause for the cross-border movement of combustion gigaliners, which will lead to further fossil fuel investments. Also, it devotes insufficient attention to road safety and the risk of a reverse modal shift. Co-legislators should therefore:

- Ensure that, when crossing borders, all European Modular Systems are zero-emission from 2030;
- Require an ex-ante safety evaluation of non-highway sections;
- Require an ex-ante evaluation of the need for additional driver training;
- Require an ex-ante route assessment to avoid modal shift.

**4. Excessive permissible weight to 5-axle rigid trucks damages road infrastructure**

5-axle rigid trucks are short, concentrated vehicles (max 12m), which cannot exceed 32t when crossing borders. The proposal (40t +2t ZE allowance) would cause massive infrastructure stress. Co-legislators should therefore guarantee that Member States can allow the cross-border movement of 5-axle rigid trucks heavier than 32t only when they also grant them the 2t ZE allowance (to be applied at national level too).

**5. Amended width limit for new light-duty vehicles**

To date, EU law has used a single legal limit (255 cm) to govern the width of all types of new vehicles. This has caused the size and width of SUVs and pick-up trucks to continuously increase, posing increasingly pressing problems for other road users (cyclists, pedestrians, etc).

EU law-makers should cap the width growth of new-sold light duty vehicles. We recommend an amended width limit of 192 cm for newly-registered light-duty vehicles, allowing a further 15 cm to large vans, mini-buses and campervans, i.e. 207 cm. The higher 207 cm limit would be applied based on internal space thresholds, namely, to passenger vehicles with at least 10 cubic metres of internal space, and 7.5 cubic metres of internal space in the case of light commercial vehicles.

The application dates proposed for these changes are 1.1.2028 for newly-registered vehicles which emit tailpipe emissions, and 1.1.2032 for zero tailpipe emission vehicles.

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# 1. Introduction

The Weights & Dimensions (W&D) Directive exists since 1996 and establishes weight limits for heavy-duty vehicles (HDVs)[1] when used for cross-border commercial transport, and their length limits when used in both national and intra-EU commercial transport. It also sets a width limit for all vehicles, including light-duty ones (cars and vans). In July 2023, the European Commission proposed to review the existing Directive to align it with the EU's objective to become climate neutral by 2050.[2]

To achieve this in the road freight sector, a full switch from diesel to zero-emission vehicles (ZEVs) is needed. But to date, diesel and gas trucks still dominate with 98.5% of new registrations. As a result, HDVs are responsible for over a quarter of CO2 emissions (27%) from road transport in Europe, half of NOx emissions (50%) and one-third of fine particulate matter (32%). This despite HDVs only making up 2% of the vehicles on our roads. If no action is taken, this scenario will persist for many years to come. Zero-emission trucks can however be heavier and take more space than internal combustion vehicles (ICE). Along with the CO2 standards for HDVs and the Alternative Fuel Infrastructure Regulation, this review of the weights of HDVs is therefore key to accelerate the uptake of ZEVs. By providing non-monetary incentives for zero-emission trucks and buses, the review of the W&D Directive is critical to stimulate their market demand.

Battery electric and hydrogen fuel cell vehicles were already granted an additional weight of 2 tonnes in 2019. But this 2t can be insufficient for some truck designs serving long-haul routes, where bigger batteries are required. To avoid those ZEVs having to sacrifice payload and being disadvantaged compared to their diesel counterparts, the Commission proposes to grant an additional 2 tonnes to ZEVs, so 4t in total. Despite its noble intentions, the Commission however does not guarantee that the proposed 4t difference between ZEVs and ICEs can be applied everywhere, applying it only to cross-border movements, while a lot of freight activity remains within a country's borders. It also allows diesel trucks to gain 4t of payload on intra-EU voyages. A new weight increase for trucks' driving axle of 1t is also proposed to be introduced. Lacking a sunset clause, this will not encourage manufacturers to shift to lighter vehicles, which would reduce the impact on road infrastructure.

Apart from changes to HDVs' weight limit, the Commission proposal facilitates the cross-border circulation of so-called gigaliners with internal combustion engines (ICE). As there is no phase-out date attached to this, these vehicles will attract massive fossil investments, and deny any incentive to the zero-emission sector. The proposal also does not give due consideration to the risks (road safety and reverse modal shift) posed by their cross-border circulation in the EU.

[1] Road vehicles with a gross vehicle weight above 3.5 tonnes moving goods and passengers.

[2] The proposal is part of the Greening freight package, which also includes a voluntary methodology for calculating emissions from transport operations and an EU-wide coordinated system for rail track management.

With regards to cars and vans, the Commission maintains the existing width limit of 2,55m for all vehicles. While this makes sense for trucks and buses, such a wide cap on car width has resulted in the growth of SUVs and pick-up trucks.[3]

Without an ambitious intervention by co-legislators, the EU will only exacerbate its dependence on ICE trucks and heavy cars, increasing harmful air pollution and failing its climate neutrality objective.

## 2. Additional weight will speed up uptake of zero-emission trucks

The W&D Directive sets maximum cross-border weight limits for different truck types, both for the overall vehicle and specific parts of the vehicle, such as individual wheel axles (see figure 1 below).

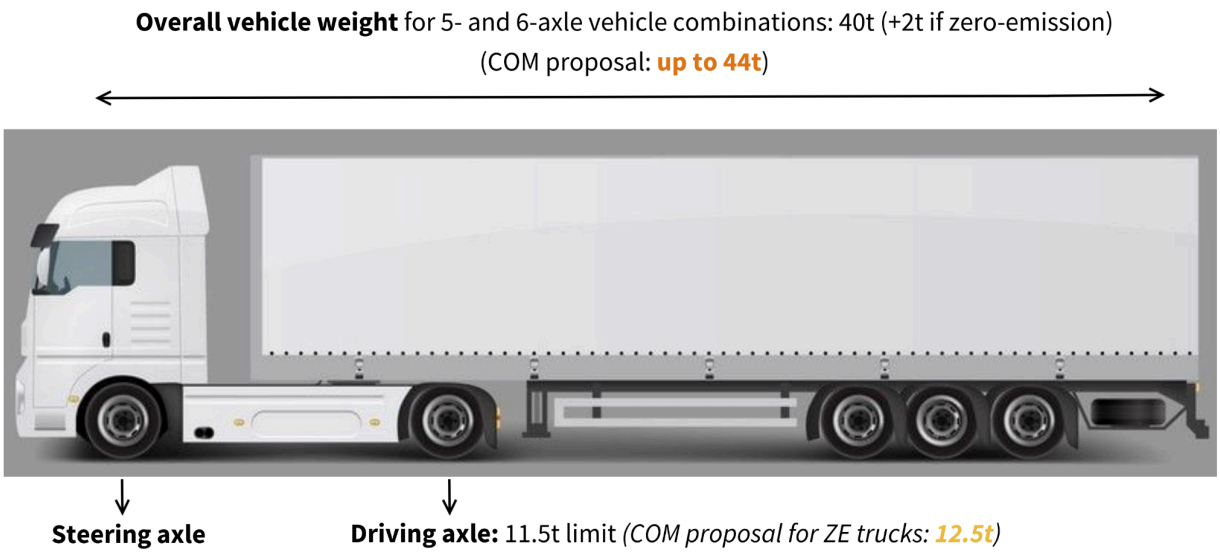



*Figure 1. Maximum permissible weights for cross-border movement of articulated vehicles*

The Commission proposes an additional overall weight allowance of 4t for zero-emission (ZE) trucks, meaning they could weigh up to 44t. Unlike the already existing weight allowance of 2t, the newly proposed 4t would no longer be limited to compensating for the weight of the ZE powertrain technology. This means that ZE trucks that don't need the full 4t to compensate for their heavier battery weight could use the remaining weight allowance to increase payload and thus competitiveness compared to their diesel counterparts.

[3] In 1997 top-selling passenger vehicles in the UK measured 1.66m wide on average, but by 2018, this figure had increased to 1.95m (including mirrors). This increase of width by about 20% since the late 1990s is most heavily influenced by the growth in sales of large SUVs. Source: DirectLine Group (2018)

However, the Commission also permits a maximum of 44t (in orange on figure 1) for trucks with internal combustion engines between 'allowing' countries. As a result, **ICE trucks will be able to increase their payload in major use cases**. Thus, the proposal needs to be amended to ensure real support for ZE trucks rather than improving the business case of diesel trucks.

The Commission also proposes a weight increase for the driving axle of zero-emission trucks (in yellow on figure 1). This weight allowance should be lowered, in order to protect road infrastructure and incentivise manufacturers to shift to lighter vehicles.

## 2.1. Extra overall weight for zero-emission trucks from 2t to 4t

For vehicle combinations (articulated vehicles and road trains)[4] with five or six axles, the limit for cross-border movement is currently 40t, unless the truck is involved in intermodal transport operations[5] where the limit can either be 42t or 44t.[6] Since 2019, zero-emission vehicle combinations can exceed these limits by 2t.[7] While for urban and most regional delivery trucks the 2t is sufficient, some truck designs for long-haul transport - which requires heavier batteries - experience payload losses compared to their diesel counterparts.[8] The Commission therefore proposes to increase the weight allowance from 2t to 4t for 5- and 6-axle vehicle combinations.

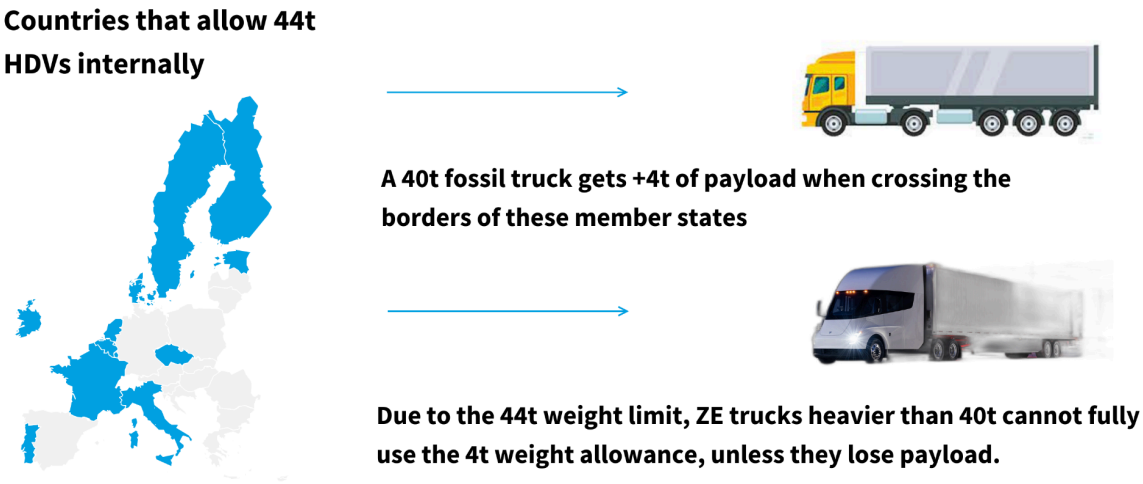
### 2.1.1 The 4t is lost in major use cases while some diesel trucks will gain payload

In practice, the Commission however severely limits the application of the 4t allowance, while granting extra payload to some diesel trucks. Proposed Article 4b requires member states that domestically allow internal combustion trucks exceeding 40t (EU limit for cross-border movement) to also permit the entry of internal combustion trucks of the same weight from neighbouring countries. This provision is subject to a maximum of 44t, except for intermodal operations, and applies until the end of 2034.[9]

This 44t maximum rules out the full use of the allowance for ZE trucks. For example, a ZE truck

[4] Articulated vehicles consist of a motor vehicle coupled to a semi-trailer and cannot exceed 16,50m. Road trains are vehicle combinations consisting of a motor vehicle coupled to a trailer and cannot exceed 18,75m.
[5] Intermodal transportation means moving goods in the same containers but combining two or more modes of transport.
[6] 42t for two-axle motor vehicles with a three-axle semi-trailer, and 44t for three-axle motor vehicles with a two- or three-axle semi-trailer.
[7] European Union (2019). Regulation (EU) 2019/1242 setting CO2 emission performance standards for new heavy-duty vehicles. Link.
[8] European Commission (2023). Impact Assessment accompanying the W&D proposal. Link.
[9] The Commission expects that, after this year, the market penetration of ZE HDVs will be enough to phase out the use of such heavier trucks running on fossil fuels. After the phasing out, heavier lorries would be allowed in member states. To cross national borders, they should comply with the weight limits set up in the W&D Directive, which guarantees the extra weight allowance to ZE vehicles and to vehicles involved in intermodal operations.

weighing 41t only has 3t left below the cap, meaning it cannot use the full 4t weight allowance granted to ZE trucks. For ZE trucks carrying weight constrained loads, this would mean payload is lost. As a consequence, they cannot compete with their diesel counterparts. Lawmakers should therefore amend Article 4b to ensure the full application of the 4t zero-emission / intermodal allowance.




Note: The 4t weight allowance for intermodal transport is not considered here given its specific use (e.g. a truck taking a container to or from a rail terminal)

*Figure 2. Consequences of proposed Article 4b*

### 2.1.2 Clarify that the 4t should also be granted for national freight transport

After original misunderstanding by multiple stakeholders, the Commission has clarified in meetings that its intention is for the 4t weight allowance to be applied to both cross-border and domestic movements of ZE trucks. This logical approach is however not completely clear in the proposal, hence the misinterpretations by stakeholders. Therefore, it is essential that the Commission further clarifies in the legal text that the 4t allowance provided in Annex I applies not only to cross-border movements of ZE trucks, but also when they exclusively run within national borders.

### 2.1.3 Risk of too many vehicles receiving the weight allowance

The proposal's Annex states that the weight allowance shall be increased by 4t "in the case of vehicle combinations including *zero-emission vehicles*".[10] This wording opens the law up for interpretation on which vehicles get the extra weight, and risks recklessly expanding the pool of beneficiaries. For

[10] 2t in the case of 4-axle road trains and articulated vehicles (sub-sections 2.2.3 and 2.2.4).

example, an ICE tractor unit could be claimed eligible just because it pulls an electric trailer.[11] Such trailers are equipped with batteries, which, when charged - which is not always the case - aid the propulsion of the vehicle combination. The wording in point 2.2. of the Annex should therefore be changed to: "in the case of vehicle combinations including zero-emission *motor* vehicles (...) shall be increased by 4t".[12]

## 2.2 Driving axle weight of zero-emission heavy-duty vehicles from 11.5t to 12.5t

A zero-emission powertrain is heavier than an internal combustion engine. Its greater weight sits more on the driving axle, putting greater mass on it (see figure 3 below).

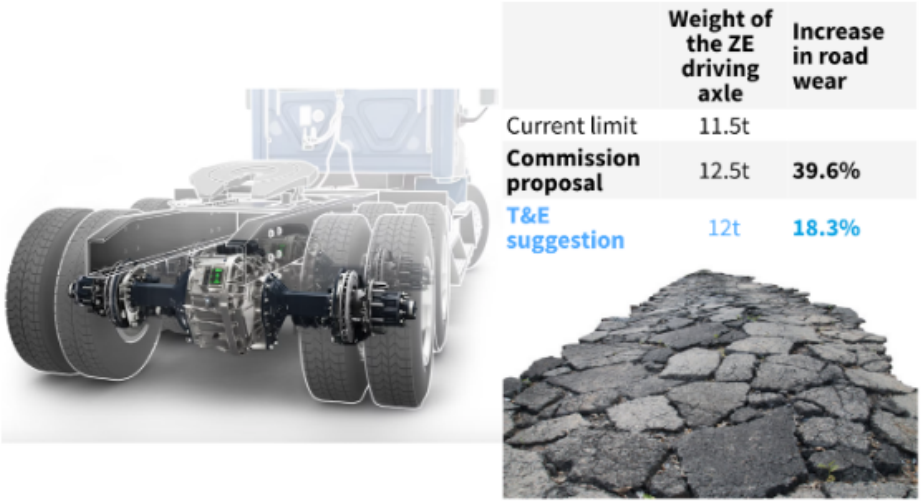
*Figure 3. Position of the powertrain in a 4x2 tractor unit with an internal combustion engine (on the left) vs. with an electric motor and battery packs (on the right)*

Currently the driving axle weight is capped at 11.5t. This can be insufficient for some ZE truck designs serving long-haul routes. The Commission therefore proposed an increase to 12.5t. However, a full tonne increase in the weight of the ZE driving axle goes far beyond what long-standing manufacturers need, for whom already 0.5t more would be sufficient.

Not granting more than what's needed is important to give due consideration to road wear and stability of bridges. There is a non-linear relationship between increased axle weight and road wear, with an expectation that a 10% heavier driving axle increases road wear by approximately 46%.[13] The Commission's proposal would result in a 39.6% increase in road wear compared to the current limit. Several member states would have to massively invest to ensure their national road infrastructure can

[11] Such a definition could also have further spill-over effects, e.g. on the demand for toll reductions of 50-75% (under the revised Eurovignette Directive) for e-trailers pulled by diesel tractor units.
[12] 4t in the case of 6-axle vehicle combinations (sub-sections 2.2.1 and 2.2.2.) and 2t in the case of 4-axle vehicle combinations (Sub-sections 2.2.3 and 2.2.4).
[13] UK Department for Transport (2010). HGV maximum weights. Link.

handle this. As it is unnecessary to go as far to incentivise zero-emission vehicles, the increase should be limited to 12t.



| | Weight of the ZE driving axle | Increase in road wear |
|---|---|---|
| Current limit | 11.5t | |
| **Commission proposal** | 12.5t | **39.6%** |
| **T&E suggestion** | 12t | **18.3%** |

*Figure 4. Relation between the increase in the weight of the driving axle and the increase in road wear*

To further mitigate road wear, any increase (whether by 0.5t or 1t) should be conditional on a number of safeguards regarding the types of tyres to be used, their pressure and the acceleration from rest.

| Safeguard category | Required deployment | Explanation |
|---|---|---|
| **Tyres**<br>- on the steering axle<br>- on the driving axle | Wide-base single tyres<br>Dual tyre configuration | *While truck and bus makers generally deploy these tyres already, they should be obliged to do so. For both axles, the rating system outlined in the 2020 tyre labelling regulation should be amended via the W&D review to require high-efficiency tyres.*[14] |
| **Tyre Pressure Monitoring System**: alert level | **0.6 bar** (instead of the current 1.2 bar), with a duty to restore pressure to the recommended level at the nearest available | *Existing UNECE rules*[15] *only require an alert to be sent to the driver of a heavy-duty vehicle when there is a loss of pressure greater than 20%, a percentage* |

[14] European Commission (2023). Tyre labelling requirements. Link. The minimum efficiency level could be set at A-rated tyres for low rolling resistance, with the minimum wet grip (minimum braking distance in wet weather) rating set at B.
[15] UNECE Regulation 141. Link.

| | | |
|---|---|---|
| | facility, taking into account the direction of travel. | *taken from light-duty vehicles. While for cars and vans a 20% loss is acceptable, for tractor unit tyres - generally inflated to 6 bar - the loss of pressure should not exceed 8.5% (equivalent to 0.5 bar). Secondly, as the UNECE provisions only require monitoring and notification, a duty to remedy under- or over-inflation should be imposed.* |
| **Acceleration limiter** | Max acceleration of **1.2m/s²**, following the example of the tender specification for new buses in London.[16] | *A gradual acceleration helps minimise road wear, especially at roundabouts and junctions, where road surfaces are most vulnerable to sudden movements.* |

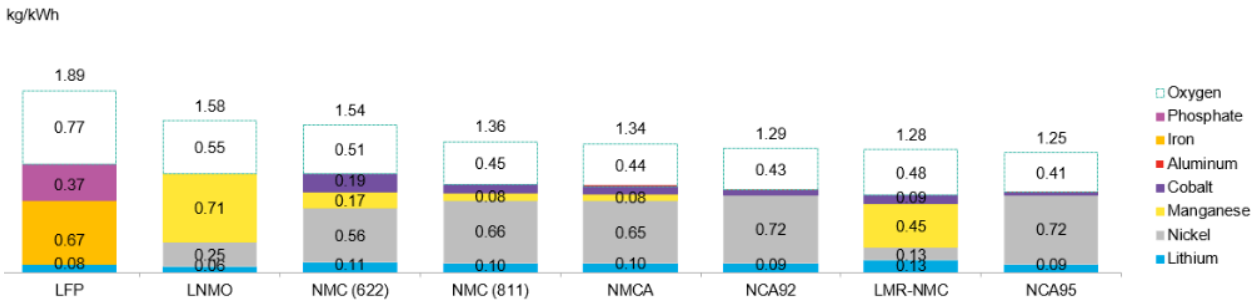
In addition, there should be a sunset clause to the new weight limit. This would incentivise manufacturers to shift to a so-called 'clean sheet' design of heavy-duty vehicles (see section 2.3 below), which ensures lighter vehicles and better use of (raw) materials.

## 2.3 Battery innovation and truck redesign will deliver lighter vehicles

The reason why additional weight is needed for ZE trucks is mainly due to the phase of the transition we are in. Put simply, legacy truckmakers are currently just fitting batteries on their existing diesel truck designs. Shifting from 2-axle tractor units to 3-axle ones (customary already in the UK and the US) would create more space to optimise battery positioning, rather than just placing them where the internal combustion engine used to sit. Trucks with clean sheet designs are also lighter due to the use of lightweight materials and overall EV incorporation in the R&D process.[17] Thanks to the swift improvement in battery chemistry, their weight can decrease even more.

Manufacturers are trying to move away from expensive and relatively scarce nickel-manganese-cobalt (NMC) batteries, towards lithium-iron-phosphate chemistries (LFP). Being considerably cheaper, LFP batteries will significantly decrease the purchase price of zero-emission vehicles. Currently, these batteries are heavier than their NMC counterparts though, and the weight allowance is therefore key to enable this shift - as shown in Figure 5.

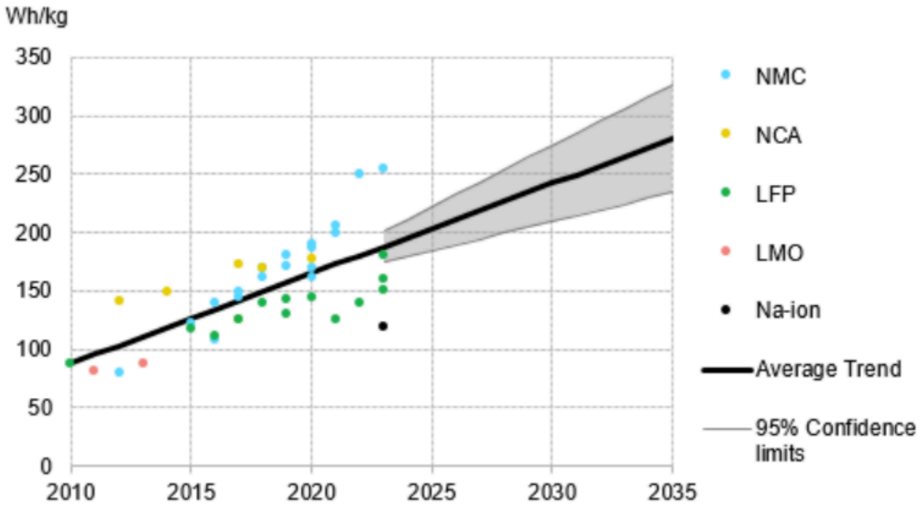
[16] Transport for London (2022). Pedal Confusion: Designing-out Electric Bus Danger. Link.
[17] Clean sheet designs also allow drivers to better see cyclists and pedestrians. To explore the topic further: Transport & Environment (2023). A new law reduces truck blindspots. E-truck designs can finish the job. Link.




*Source: BloombergNEF*[18]

*Figure 5. Different battery compositions and their weight*

However, the energy density of LFP batteries is increasing year after year. By 2027/8, it will be comparable to the upper range of NMC batteries today (figure 6).




*Source: BloombergNEF*[19]

*Figure 6. 2010-2035 improvement trend in average energy density*

Manufacturers will need to be pushed to shift to clean sheet designs and (raw) material lightweighting, as this requires some R&D investments. A 2029 end date for the additional weight for the driving axle (be it 0.5t or 1t) would enable this. Before the end date, the extra weight on the driving-axle gives flexibility to ramp-up zero-emission manufacturing using legacy chassis while clean sheet designs are developed and energy density improves.

[18] BloombergNEF (18.08.2023), "Lithium-Ion Batteries: State of the Industry 2023".
[19] *Ibid.*

### Buses and coaches

Supporting the decarbonization of buses and coaches is essential, as their activity will grow by 10% between 2019 and 2050.[20] The electrification of this sector is proceeding at a higher speed compared to trucks, with e.g. zero-emission buses accounting for 13% of all bus sales in Europe in 2022[21]. An increase in the weight allowances would further boost sales and ensure operators can keep the same number of passengers.

The Commission proposes to grant ZE two-axle buses a weight allowance of 2t on top of their maximum weight (19.5t). Three-axle articulated buses (28t) were already granted this 2t allowance in 2019. However, as for trucks the allowance would no longer be linked to the weight of the ZE technology.

ZE two-axle buses are also granted an additional 1t for their driving axle, while three-axle articulated ones do not receive this. To protect road infrastructure, the same safeguards we proposed for trucks should apply (see section 2.2 above): a more moderate weight increase, as well as requirement on tyre types, tyre pressure and acceleration. With regard to the sunset clause for the driving axle weight increase, more flexibility (until January 2035) could be granted to buses given their smaller (absolute) sales numbers.

## 3. European Modular Systems: no ZE signal and weak safeguards

The Commission proposes to facilitate the cross-border circulation of European Modular Systems (EMS), commonly known as 'gigaliners'. These are longer and often heavier vehicle combinations consisting of multiple modules and with a typical length of 25,25m.[22]

[20] European Commission (2021). EU reference scenario 2020. Link.
[21] The International Council on Clean Transportation (2023). Zero-emission bus and truck market in Europe: A 2022 update. Link.
[22] The proposal defines them as '(...) a motor vehicle or vehicle combination coupled to one or more trailers or semi-trailers where the total combination exceeds the maximum authorised length and may exceed the maximum authorised weights laid down in Annex I (...)'.

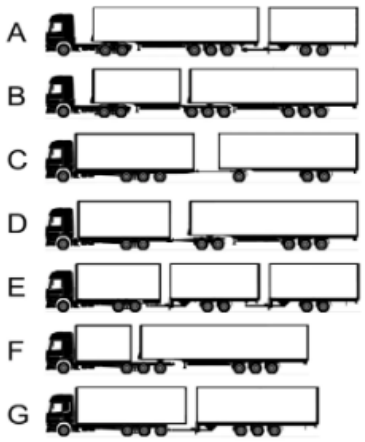



*Figure 7. Configurations of European Modular Systems*

The circulation of gigaliners within national borders is currently regulated by each member state, which can determine the maximum weight of these vehicles. In most cases they do not exceed 60t. On the other hand, the cross-border movement of gigaliners is in a legal grey area, with its legality often called into question due to the unclear wording in the existing W&D Directive.

The proposal requires member states that allow gigaliners internally to also accept their entry from neighbouring countries. In this case, gigaliners cannot exceed the weight and length limits of the state they enter. However, the Commission did not include any sunset clause for gigaliners with an internal combustion engine. This, once again, denies any incentive to the ZE sector. If no action is taken by co-legislators, this facilitation of gigaliners will result in a massive flow of fossil fuel investments. The proposal also does not adequately take into account the impact of gigaliners on cyclists and pedestrians, nor the risk of a reverse modal shift.

Within the EU, huge differences exist between the few countries where gigaliners currently operate. Weights and dimensions vary significantly, as do the routes accessible to these vehicle combinations. Weight is the most variable element. Finland and Sweden - the only EU countries where gigaliners are fully allowed and not being tested[23] - permit respectively 76 and 74t. On the other hand, Germany stops at 40t, with a 44t exception for gigaliners involved in intermodal operations.

The existing W&D rules do not explicitly permit the cross-border movement of gigaliners, but over the years some countries have allowed it through bi-lateral agreements. The alleged legal basis of such agreements stems from Article 4(5) of the existing W&D Directive, which states that “Member States

[23] European Modular Systems are currently being tested in Belgium, Czech Republic, Denmark, Germany, the Netherlands, Portugal and Spain.

may allow vehicles or vehicle combinations incorporating new technologies or new concepts which cannot comply with one or more requirements of this Directive to carry out *certain local transport operations for a trial period*. (...)." This wording does not specify either the geographical extension of 'local', nor the length of the trial period.

Member states have interpreted this Article broadly, as shown by the long-standing cross-border movement of gigaliners between Sweden and Finland. An agreement was also signed between Germany and the Netherlands in 2021, questioning the definition of local transport operations.

## 3.1 The need for a sunset clause for internal combustion gigaliners

The proposal contains no sunset clause for gigaliners with internal combustion engines. This will slow down investments in ZE trucks and hinder the decarbonization of road transport. To send the needed signal to shift-away from fossil fuels, only ZE gigaliners should be allowed to cross national borders from 2030 onwards.

## 3.2 Weak protection of road safety and lack of training of drivers

The typical length of gigaliners is 25,25m. Over the years, some member states (e.g. Sweden and Finland) have however received EU approval to exceed this limit.[24]


*Figure 8. A European Modular System turning a roundabout*

Due to their size, gigaliners risk endangering the most vulnerable road users, such as cyclists and pedestrians. The danger of gigaliners is greatest as they leave highways, travelling on other types of roads to reach, for example, logistics centres. This is where road safety should be better safeguarded. Unfortunately, the Commission overlooks this aspect. The proposal (Article 4, paragraph 4a) only

[24] From 2024, Sweden will deploy 34,5m long vehicles, which in Finland are already in use since 2019.

requires EU states to set up a monitoring system and assess the impact of gigaliners on a number of elements, including road safety. This provision is too weak, as it does not set any obligation to ex-ante assess the impact on cyclists and pedestrians (not even mentioned in the proposal). There can be no adequate protection without an ex-ante evaluation of the route covered by gigaliners. Creating an additional sense of insecurity, the proposal thereby risks increasing the number of people choosing motor vehicles for their daily commute. Also, it does not give any indication as to what kind of monitoring the member states will have to carry out. Such a loose approach may create a patchwork of different solutions among the EU.

Furthermore, the Commission overlooks the need to assess (ex-ante) any need for additional driver training. In light of the proposal, which facilitates the use of gigaliners, and their impact, co-legislators need to address this shortcoming.

### 3.3 The risk of a reverse modal shift

Given the expected massive increase in freight activity (+40% between 2019 and 2040),[25] road transport and other modes of transport (especially rail, but also waterways) can be complementary rather than substitutes. Although trucks can serve areas that are less practicable for other transport modes, their use should be avoided if there is a reasonable risk of overlapping routes. An indiscriminate use of gigaliners, besides diverting attention from the ZE sector, would risk incentivising a modal shift in most EU member states, in particular from rail to road.

The Commission inadequately addresses this risk. It only asks member states to assess the impact of gigaliners on modal split, without requiring any ex-ante assessment of their routes. Also, the proposal does not include any practical guidelines on the assessment.

## 4. Excessive weight for 5-axle rigid trucks damages roads

The expected increase in freight activity will require states to protect and improve their road infrastructure. But they should not be overburdened. Unfortunately, there is one category of trucks for which the Commission ignores this tenet. The proposal authorises a maximum weight of 40t (+2t ZE allowance) for the cross-border movement of 5-axle rigid trucks.

Unlike vehicle combinations, rigid trucks have a permanent structure that includes the driver's cab and the load-carrying area as a single unit. 5-axle rigids are short, concentrated vehicles with a typical length of 10-11m (max 12m). Given their structure, when fully loaded they have a significant impact on road infrastructure, particularly bridges. At national level, their weight typically ranges between 32t

[25] European Commission, (2021). EU reference scenario 2020. Link.

and 36t,[26] while in cross-border transport these vehicles must comply with the 32t limit set by the existing W&D rules for 4-axle rigid trucks.[27]

*Figure 9. A rigid truck with five axles*

The massive increase in the weight of these vehicles proposed by the Commission does not give due consideration to this risk. Allowing 40/42t on these short vehicles is detrimental to the European road infrastructure. Therefore, we propose that, if these trucks exceed 32t, member states can bilaterally agree on their cross-border movement only if they grant them the 2t zero-emission allowance. This should be applied also within each member state.

## 5. Amending the width limit of light-duty vehicles

To date, EU law has used a single legal limit to govern the width of all types of new vehicles, namely 255 cm[28]. Set in the 1990s, this 255 cm width limit was enacted to stop new trucks and buses from becoming ever-wider (i.e. focused on HDVs) but this limit still applies to light duty vehicles. Data on European best-sellers shows that the width of passenger vehicles has increased by 14 cm since the year 2000. Imported pick-ups, such as Dodge RAMs for example, already occupy a comparable width to European-made buses and trucks, while mostly used to carry little more than one person.

[26] Germany, for example, applies a weight limit of 32t to 5-axle rigids.

[27] European Commission (2023). Impact Assessment accompanying the Proposal for a Directive of the European Parliament and of the Council amending Council Directive 96/53/EC laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic. Link.

[28] Commission Regulation (EU) No 1230/2012 with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers. Note: there is an exception for temperature-controlled trucks (which can be slightly wider at 2.6m). This value excludes mirrors.

The expanding width of new cars pose increasingly pressing problems. As cars account for close to 90% of the vehicles on the road, expanding car width takes spaces from other road users (cycling, walking, etc), and thus has significant negative impacts on the ability to share road space.

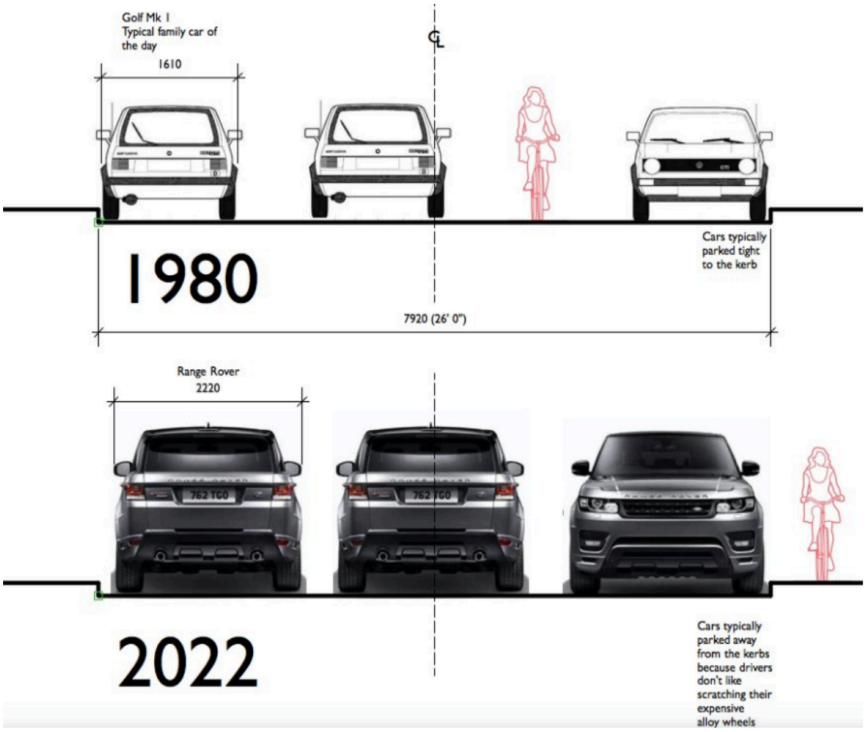



*Figure 10. Comparison of car width on typical street (2022 vs. 2018). Source: Twitter*

Pedestrians lose space as wider cars are sometimes parked to oversail the footpath, partly obstructing it. Similarly, buses and trucks - which have a clear public case to be wider - can be obstructed by wider cars / SUVs when they need to pass each other. Increased car width has also enabled them to become higher, which can obstruct road-users' views and increase the chances of severe injuries in case of collision. Finally, wider passenger vehicles generally use more energy and raw materials.

To prevent cars from continuously getting wider, EU law-makers should use the W&D Directive to amend the width limit of light-duty vehicles. T&E proposes 192 cm for newly-registered light duty vehicles with a further 15 cm allowed to large vans, mini-buses and campervans, which would then be governed by a 207 cm width limit. For passenger vehicles, the higher 207 cm limit would apply to vehicles with at least 10 cubic metres of internal space. For light commercial, 207 cm would apply to vehicles with at least 7.5 cubic metres of internal space. In terms of timing, the application dates proposed for these changes are 1.1.2028 for newly-registered vehicles which emit tailpipe emissions, and 1.1.2032 for zero tailpipe emission vehicles.

## 6. Policy recommendations

| T&E analysis of the Commission proposal | T&E recommendation |
|---|---|
| **The 4t weight allowance for zero-emission trucks** | |
| The proposal fails to ensure its full application and leaves cross-border movement largely to diesel trucks. Across key national borders (e.g. FR-BE), diesel trucks gain 4t of payload. | Delete Article 4b to protect the existing cross-border weight limit (40t), to be exceeded by zero-emission vehicles only (+4t).<br><br>Only as an alternative: allow member states to agree on a weight limit between 40 and 44t for the cross-border movement of trucks with an internal combustion engine (ICE) where they provide 4t of ZE / intermodal allowance on top of their agreed maximum for ICE vehicles.<br>Within such an approach, when the total weight exceeds 44t, EU countries should be allowed to impose the use of 6-axle vehicle combinations. |
| **National application of the zero-emission allowance** | |
| The wording of the proposal is not completely clear about the scope of the 4t ZE allowance. | Further clarify in the legal text that the 4t for ZE trucks applies not only to cross-border movements, but also when they exclusively run within national borders. |
| **Vehicle combinations receiving the zero-emission allowance** | |
| The proposal risks extending the zero-emission weight allowance[29] to diesel tractor units only pulling e-trailers. | Change the wording of the Annex (point 2.2) and grant the ZE allowance only 'in the case of vehicle combinations including *motor* vehicles'. |
| **Driving axle of new zero-emission heavy-duty vehicles** | |
| The proposed increase (from 11.5 to 12.5t) excessively increases road wear, goes beyond the needs of manufacturers and does not | Reduce its increase to 12t, insert a sunset clause in 2029 (and an indicative 2035 date for buses) |

[29] 4t in the case of 6-axle vehicle combinations (sub-sections 2.2.1 and 2.2.2.) and 2t in the case of 4-axle vehicle combinations (sub-sections 2.2.3 and 2.2.4).

| | |
|---|---|
| encourage them to shift to clean sheet designs. | and make it subject to safeguards on tyres, tyre pressure and acceleration. |
| **European Modular Systems** | |
| The proposal facilitates the cross-border movement of gigaliners, without setting any zero-emission signal. It also lacks robust safeguards. | Only zero-emission European Modular Systems should be allowed to cross borders from 2030.<br>EU states shall conduct an ex-ante evaluation of:<br>● Road Safety<br>● Risk of a reverse modal shift<br>● Need for additional driver training |
| **5-axle rigid trucks** | |
| They cannot exceed 32t when crossing borders. The proposed 40t (+ 2t if ZE) would cause massive infrastructure stress. | Neighbouring Member States may permit cross-border movements higher than 32t only if they provide a 2t ZE allowance for them. |
| **Width of light-duty vehicles** | |
| The proposal does not reform the existing width limit of 255 cm, disregarding the disproportionate growth (and danger) from the growth in size of large SUVs and pick-up trucks in particular. | Amend the width limit of light-duty vehicles to 192 cm for new registrations, allowing a further 15 cm to large vans, mini-buses and campervans, i.e. 207 cm. The higher 207 cm limit would be applied based on internal space thresholds, namely, to passenger vehicles with at least 10 cubic metres of internal space, and 7.5 cubic metres of internal space in the case of light commercial vehicles.<br>The application dates proposed for these changes are 1.1.2028 for newly-registered vehicles which emit tailpipe emissions, and 1.1.2032 for zero tailpipe emission vehicles. |

## Further information

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