



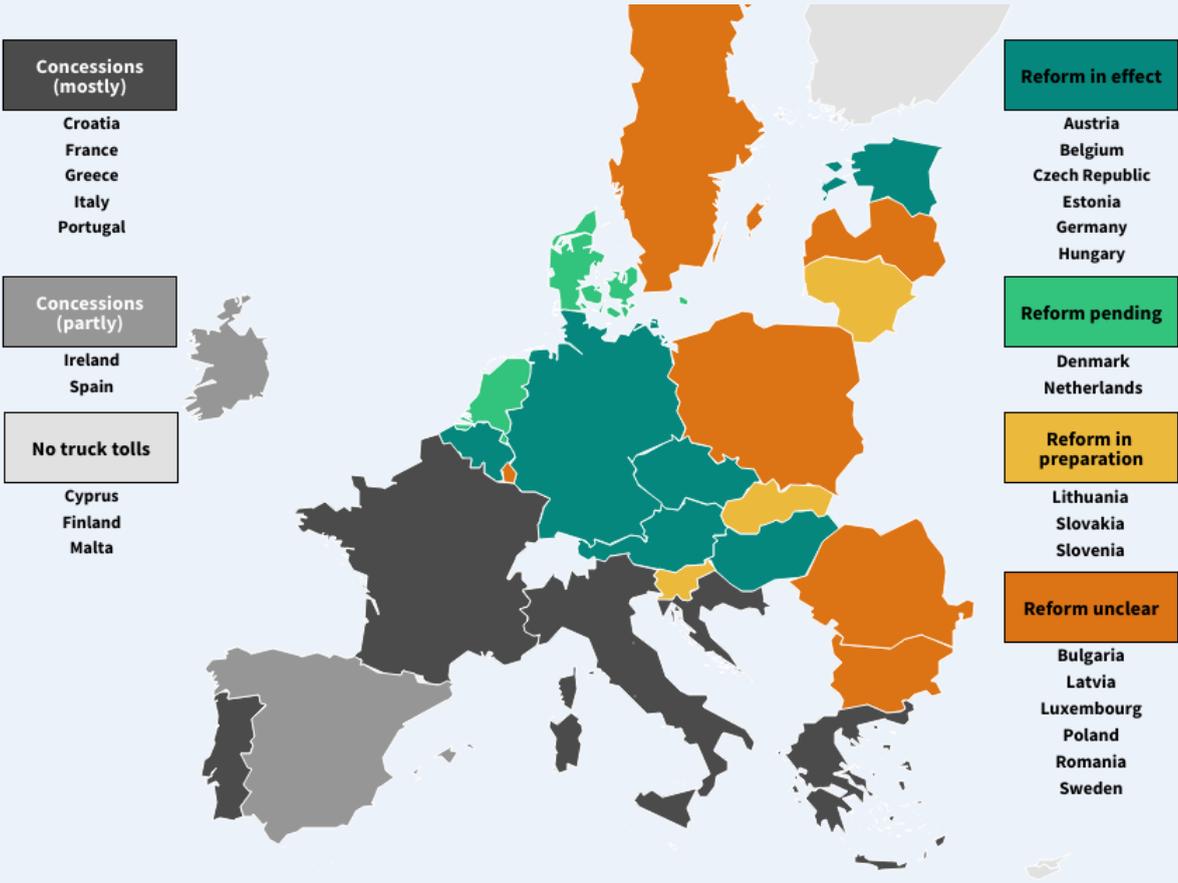
# Tolling: the highway to green trucking

How to implement the Eurovignette reform to clean up trucks

March 2024 (update)

## Summary

Tolling in the EU is governed by the Eurovignette directive. While member states are not required to impose road tolls on vehicles, where they do, they must follow the EU directive. In 2022, the directive was reformed to help put cleaner trucks on the road and deliver much-needed emission reductions from heavy-duty vehicles (HDVs). Two years later, just after the deadline for countries with government-directed distance-based tolls to start varying charges by CO<sub>2</sub> (25 March 2024), T&E takes stock of Eurovignette implementation.



Sources: European Commission (2017), European Union (2022), Government authorities (various dates).

The requirement to vary truck tolls by CO<sub>2</sub> is the centrepiece of the reform. Member states that toll trucks by distance - and where governments have retained the power to vary toll charges - are best placed to deliver change. These countries are Austria, Belgium, Bulgaria, Czech Republic, Germany, Hungary, Germany, Hungary, Poland, Slovakia and Slovenia. The majority of these countries have carried out the reform in time. However Bulgaria, Poland, Slovakia and Slovenia have not, and therefore need to do so as quickly as possible in order to comply with EU law. Lithuania (2024), Denmark (2025), the Netherlands and Romania (both 2026) will switch from time- to distance-based tolling systems soon. Denmark and the Netherlands have already passed laws to introduce CO<sub>2</sub>-based tolling systems, while Lithuania and Romania are in full preparation to do so.

Tolling based on the amount of time spent in a country (rather than the distance travelled), does not recover external costs in a proportionate way, and has been in decline across the EU. By 2026, Estonia, Latvia, Luxembourg and Sweden are expected to be the only remaining member states with time-based truck charges, meaning this type of tolling (often called 'vignettes') would apply in countries that together account for just 4% of EU truck activity. From 2030/2032, time-based charges on the TEN-T core network will only be possible in very limited circumstances. From 25 March 2024 (2025 for combined charging system countries such as Luxembourg and Sweden), member states that retain vignettes have to vary them for CO<sub>2</sub>. Only Estonia has carried out the reform so far, while Latvia has missed the deadline, and Luxembourg and Sweden are approaching their deadline which is in a year from now.

In summary, by 2026, distance- and time-based tolls varied by CO<sub>2</sub> are expected to be in force in 17 member states. This means that 62% of EU truck activity (measured in tonne-kilometres) will have a strong incentive to switch to zero-emission vehicles (ZEVs).

The most effective way to implement this reform is carrot-and-stick, that is to reduce tolls for cleaner trucks, and increase them for trucks that emit more. Incentivising cleaner trucks while at the same time disincentivising less efficient ones will most influence a truck's total cost of ownership (TCO) and therefore, new truck purchases, a strategy that best reduces diesel consumption and emissions.

For example, with Germany's reform, toll charges for diesel trucks were significantly increased and now amount to 46,500 EUR per year on average in the long-haul segment. Zero-emission trucks on the other hand receive a big reduction and pay less than 2,000 EUR annually until 2025, and less than 7,000 EUR thereafter. This means that hauliers who purchase one of Daimler's new eActros 600 will save almost 45,000 EUR in their first year of operation. From 2026 onwards, the savings will amount to around 40,000 EUR.

Transitioning to zero-emission trucks can be further aided by the use of new revenue from toll reform. In particular, external cost charging (for CO<sub>2</sub>, air and noise pollution) will supplement current revenue streams, and can be re-distributed equitably, with due attention to the reduced capacity of smaller truckers to finance their switch to zero-emission trucks.

The highway networks of five member states are dominated by concession contracts, namely France, Italy, Croatia, Greece and Portugal (while Ireland's and Spain's highway networks are partly concession-controlled). Tolling in these member states is distance-based, but the existing concession agreements typically mean that governments can only vary toll charges by agreement with the concession holder (or under a formal procedure, often signed decades ago, with little regard to climate breakdown, air and noise pollution). For new concession agreements, or where existing contracts are renewed or substantially amended, concession countries must respect the new rules set out in the revised directive, including varying tolls by CO<sub>2</sub>.

However, without a proactive approach by concession governments to existing contracts, reform will be slow. These governments can step up with a more innovative approach, for example, by engaging with existing concessionaires to persuade them to revise tolls in a revenue-neutral way (i.e. reductions for cleaner trucks offset by increases for trucks that emit more). Countries with some form of concessions account for up to 36% of EU truck activity, and it is important for these member states to adapt their tolling systems so that they support the transition to zero-emission trucks.

The next upcoming deadline is 25 March 2026, when countries with government-directed distance-based tolling also need to charge trucks for air pollutant emissions. Five member states already apply air pollution charges: Austria, Belgium, Czech Republic, Germany and Hungary. In terms of implementation, it will be important for member states to consider their revisions in an integrated way, i.e. follow a strategic planning process with both the March 2024 and March 2026 deadlines in mind. For example, Hungary has done just that by already introducing air pollution charges as part of its bigger reform carried out in 2023.

A small number of member states which toll trucks exempt some or all vehicles between 3.5 and 12 tonnes gross vehicle weight (GVW), namely Denmark, Germany (3.5 - 7.5 tonnes), Luxembourg, the Netherlands and Sweden. Under the revision, these exemptions must be removed by 25 March 2027 at the latest. Here, Germany serves as a good example as the country decided to extend tolling to all vehicles from 3.5 tonnes earlier than the legal deadline requires (from 01 July 2024).

Overall, the Eurovignette revision is an opportunity-filled reform. Tolling according to CO<sub>2</sub> and charging for air and noise pollution will aid the shift to zero-emission trucks. Thanks to the breadth and depth of the revision, policy-makers are given the tools they need to match ambition on climate and other externalities to their domestic political and societal landscape.

However, as the deadline to vary tolls by CO<sub>2</sub> for countries with government-controlled tolls has just passed on 25 March 2024, Bulgaria, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia need to reform their systems as quickly as possible in order to comply with the new directive, while Luxembourg and Sweden will have to do so within the coming year.

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# 1. Introduction

Heavy-duty-vehicles (HDVs) - or all road vehicles with a gross vehicle weight (GVW) above 3.5 tonnes moving goods and passengers - are responsible for 28% of greenhouse gas (GHG) emissions from road transport in Europe,<sup>1</sup> while accounting for only 2% of the vehicles on the road.<sup>2</sup> Over 90% of these emissions are caused by trucks and less than 10% by buses and coaches. If no action is taken, these emissions will continue to grow. The European Commission<sup>3</sup> expects truck activity in the European Union (EU) to further increase by 40% between 2019 and 2050, while activity from buses and coaches would grow by 10% over the same period.

To reach climate neutrality by 2050, trucks and buses need to be entirely decarbonised, and all new sales of trucks and buses must be zero-emission by 2035.<sup>4</sup> Zero-emission vehicles (ZEVs) - which are defined by EU law as battery electric (BEVs), fuel cell electric vehicles (FCEVs) or hydrogen combustion trucks (H<sub>2</sub>-ICE) - are the only available technology which can cut climate emissions from new sales quickly, fully decarbonise the heavy-duty sector in the long-term and eliminate harmful air pollution.<sup>5</sup>

T&E analysis<sup>6</sup> shows that it is possible to fully transition all new freight trucks to zero emissions cost-effectively and in time to meet Europe's climate targets. All new urban, regional and long-haul trucks can be electric by the 2030s across all European markets. All new sales in those segments can have a lower total cost of ownership (TCO) compared to diesel while delivering the same capabilities in terms of vehicle range, payload and driving times.

European truck manufacturers are planning to ramp up zero-emission truck sales rapidly over the coming years. Industry plans based on official talks between German government authorities and European truck manufacturers - the so-called 'cleanroom talks' - show that the companies plan to reach 63% zero-emission truck sales in Europe already by 2030.<sup>7</sup> Truck makers, including Daimler, MAN, Scania and Volvo are now focussing on bringing electric trucks to the mass market for all vehicle segments, and including for long-haul starting from 2024. Around 30 zero-emission truck models have already been announced to go into mass production for the European market by 2025.<sup>8</sup>

Daimler is readying its 500 km range *eActros 600* truck for series production in 2024.<sup>9</sup> MAN will also begin series production of its *eTGX* with a range of 450 km by 2024.<sup>10</sup> By 2025, Scania intends to offer

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<sup>1</sup> UNFCCC (2022). GHG data from UNFCCC. [Link](#).

<sup>2</sup> ACEA (2022). Report – Vehicles in use, Europe 2022. [Link](#).

<sup>3</sup> European Commission (2021). EU reference scenario 2020. [Link](#).

<sup>4</sup> Transport & Environment (2023). Why all new freight trucks and buses need to be zero-emission by 2035. [Link](#).

<sup>5</sup> Transport & Environment (2023). Truck CO<sub>2</sub>: Europe's chance to lead. [Link](#).

<sup>6</sup> Transport & Environment (2022). Electric trucks take charge. [Link](#).

<sup>7</sup> NOW GmbH (2023). New NOW publication: Market development of climate-friendly technologies in heavy road freight transport. [Link](#).

<sup>8</sup> Vehicle manufacturers' announcements.

<sup>9</sup> Daimler (2023). Mercedes-Benz Trucks celebrates world premiere of the battery electric long-haul truck eActros 600. [Link](#).

<sup>10</sup> MAN (2023). Sale of the new MAN eTruck starts. [Link](#).

electric vehicles for all segments, including vocational, construction, mining and timber trucks.<sup>11</sup> By 2026, the company will offer battery-powered 40-tonne trucks capable of running four and a half hours between breaks for 560 km.<sup>12</sup> Volvo already mass produces its Volvo FH Electric which offers 500 km of range with one opportunity charging stop.<sup>13</sup> DAF began the series production of its *XD Electric* and *XF Electric* with a 500 km range in 2023.<sup>14</sup> IVECO began production of the Nikola Tre BEV with a 500 km range in 2023.<sup>15</sup> In addition, the series production of hydrogen-powered trucks (FCEVs and H2-ICE) is planned for the second half of the decade by several European manufacturers including Daimler, Volvo and IVECO.

### **The revision of the EU's road tolling law**

Europe's revised road tolling law, the so-called *Eurovignette* directive<sup>16</sup>, mandates governments which levy tolls on trucks to vary them according to CO<sub>2</sub> emissions. CO<sub>2</sub>-based tolling is a key enabler to support the early market uptake of electric and hydrogen trucks and transition the European truck fleet to zero emissions. Depending on the reform option chosen, the differentiation of road tolls based on CO<sub>2</sub> emissions will significantly bring forward the date when zero-emission trucks become cheaper than diesel on a TCO basis.

This policy briefing comes as an update to a previous publication<sup>17</sup> and lays out the main elements of the new law<sup>18</sup> with regard to trucks, as well as the current state of play on implementation. It provides concrete policy recommendations for national regulators on how to implement the directive and reform their national truck tolling systems, which many of them had to conclude by 25 March 2024. Regulatory elements that concern passenger cars, light commercial vehicles and buses are not addressed in this briefing. Tolling instruments such as voluntary congestion charges or mark-ups for environmentally sensitive regions are also out of scope.

## **2. EU truck tolling: a geographical overview**

A large block of EU countries apply distance-based tolling directly overseen by the government (see Figure 1). The price structure is typically determined by a national authority, generally in collaboration with one or more government authorities. Long-term contracts giving power or influence to non-state actors *over the price structure* are not used. This block is anchored by Germany and Poland, with Austria, Czech Republic, Slovakia, Hungary and Slovenia to the centre-east and south. To the west and north, the block includes Belgium, with Denmark and the Netherlands set to

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<sup>11</sup> Scania (2021). Scania's commitment to electrification – our initiatives so far. [Link](#).

<sup>12</sup> Scania (2023). Annual and Sustainability Report 2022. [Link](#).

<sup>13</sup> Volvo (2022). Volvo's heavy-duty electric truck is put to the test: excels in both range and energy efficiency. [Link](#).

<sup>14</sup> DAF (2022). DAF Trucks demonstrates industry leadership at IAA 2022. [Link](#).

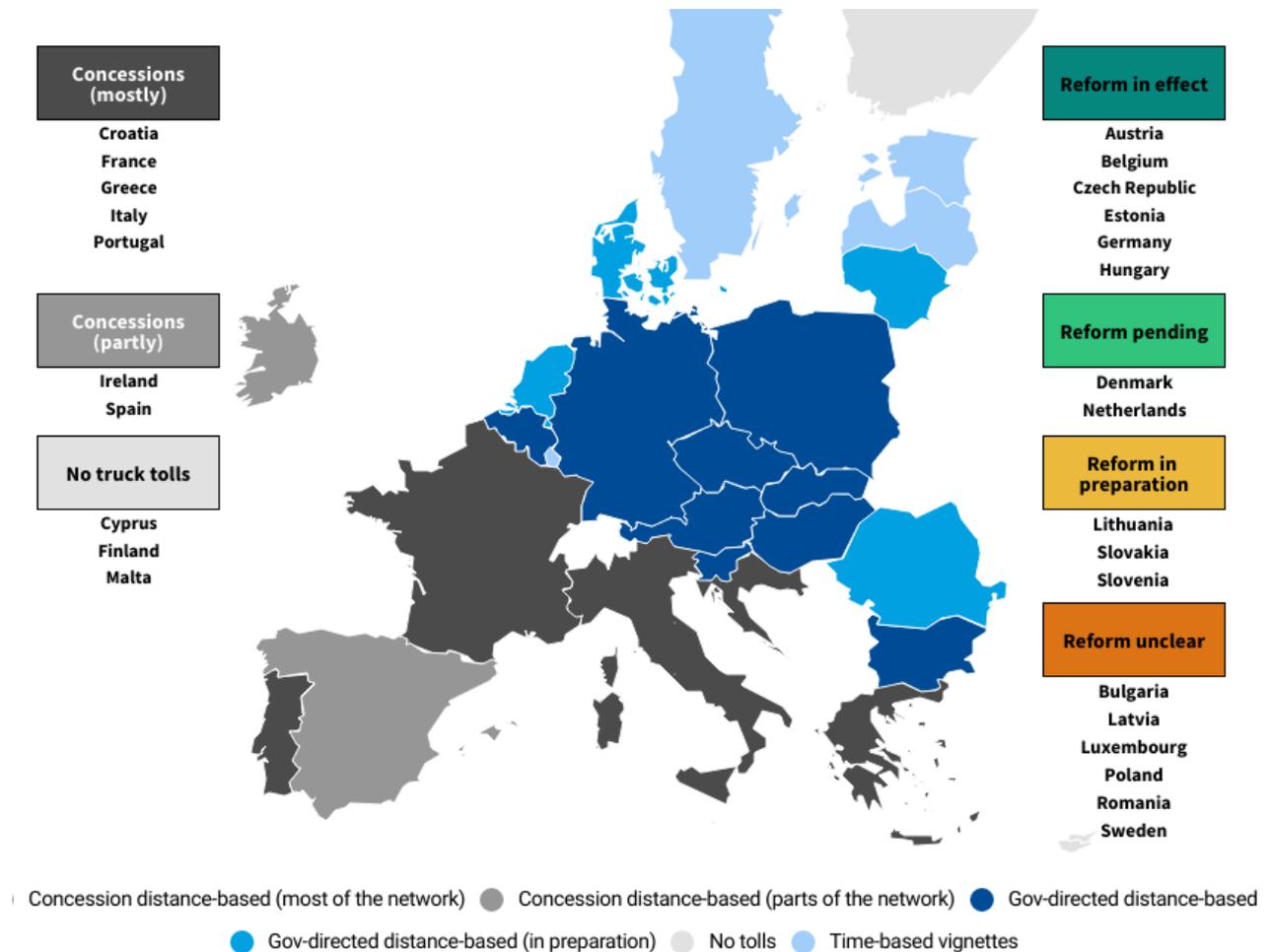
<sup>15</sup> IVECO (2022). Iveco Group displays its product milestones towards net zero carbon mobility at IAA Transportation 2022. [Link](#).

<sup>16</sup> European Union (2022). Directive 1999/62/EC of the European Parliament and of the Council of 17 June 1999 on the charging of vehicles for the use of road infrastructures. [Link](#).

<sup>17</sup> Transport & Environment (2022). Tolling: the highway to green trucking. [Link](#).

<sup>18</sup> EU Directive 2022/362. [Link](#). The 2022 reform has been consolidated with the earlier legislation, hereafter referred to as 'the directive'. [Link](#).

join in 2025 and 2026 respectively. Government-directed distance-based tolling is also in use in Bulgaria and is currently being prepared in Lithuania (for 2024)<sup>19</sup> and Romania (2026).<sup>20</sup>



Sources: European Commission (2017), European Union (2022), Government authorities (various dates).

Figure 1. Overview of truck tolling systems and reform progress in EU member states

A handful of member states toll by distance but with long-term concession contracts granted to private operators (so-called ‘concession countries’). Almost all highways in France and Italy are under such concessions. Croatia, Greece and Portugal are also concession-dominated, while selected highway sections in Ireland and Spain are concession tolled. Spain has a decreasing number of concessions, because its toll roads are becoming free-to-use as contracts expire. Based on national tonne-kilometre data, some form of concession-controlled distance-based tolls apply in member states which represent up to 36% of EU truck activity today.

<sup>19</sup> GNSS Consulting (2022). An overview of the plans in Lithuania for procuring a nationwide tolling system. [Link](#).

<sup>20</sup> Portalul legislativ (2023). LEGE nr. 226 din 14 iulie 2023 privind aplicarea unor tarife rutiere pe rețeaua de drumuri naționale din România. [Link](#).

Distance-based tolling can be contrasted with time-based user charges, which allow a vehicle to use the infrastructure for a given period, e.g. a day or week. Time-based user charges are also referred to as 'vignettes'. User charges for trucks are declining across Europe but a small number of countries retain them for regional equality reasons (to avoid greater transport costs for business in remote areas), or due to the disproportionate implementation costs of switching to distance-based tolling.

Sweden is the largest vignette country. Estonia and Latvia also apply vignettes, as does Luxembourg. Lithuania is anticipated to transition from a vignette system to distance-based tolling by 2024, though the reform is currently on hold due to the tendering process being contested in court.<sup>21</sup> Romania currently has truck vignettes but is also planning to migrate to distance-based charging by 2026. By that year, it is expected that vignettes will apply in member states that account for just 4% of EU truck activity.

Adding both types of distance-based tolling together gives a coverage of up to 94% of EU truck activity (58% government-directed and up to 36% concession-operated).<sup>22</sup> Together with vignette user charges, this brings total EU truck toll/vignette coverage up to 98%. The remaining 2% of truck activity takes place in Cyprus, Finland, and Malta which currently do not levy truck tolls. How the EU's toll geography interacts with the Eurovignette revision is teased out further in section 3.

### 3. How toll reform lowers the TCO for zero-emission trucks

Fleet operator surveys show that TCO is one of - if not the most important - factor when purchasing and operating a truck.<sup>23,24</sup> The sales volume of zero-emission trucks in the EU is currently still low at 1.5% of total sales in 2023,<sup>25</sup> resulting in higher upfront vehicle costs. However, the zero-emission truck sales share is estimated to increase to more than 5% already by 2025 as vehicle manufacturers' must meet their first CO<sub>2</sub> reduction target under the CO<sub>2</sub> standards for new HDVs.<sup>26</sup>

Recent studies by environmental organisations,<sup>27</sup> research groups<sup>28</sup> and truck makers<sup>29</sup> include TCO assessments for long-haul electric and hydrogen trucks. A conclusion shared across these reports is that as ZEV sales ramp up, production costs will fall. These studies also emphasise how CO<sub>2</sub>-based road tolling is one of the most effective policy instruments to accelerate TCO parity.<sup>30</sup>

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<sup>21</sup> Verslo žinios (2023). Vėl atidedamas kelių rinkliavos sistemos „E-tolling“ startas. [Link](#).

<sup>22</sup> Differences due to rounding. The 36% share for concession-operated systems is a maximum estimate as it includes both Spain and Ireland whose remaining concessions will gradually expire in the coming years.

<sup>23</sup> Öko-Institut e.V. (2022). Anforderungen der Logistikbranche an einen Umstieg auf klimaschonende Fahrzeugtechnologien - Ergebnisbericht einer standardisierten Befragung. [Link](#).

<sup>24</sup> Bain & Company (2022). European Truck Market Outlook 2022. [Link](#).

<sup>25</sup> ACEA (2024). New commercial vehicle registrations: vans +14.6%, trucks +16.3%, buses +19.4% in 2023. [Link](#).

<sup>26</sup> T&E calculations based on EUTRM (2024).

<sup>27</sup> Transport & Environment (2022). Electric trucks take charge. [Link](#).

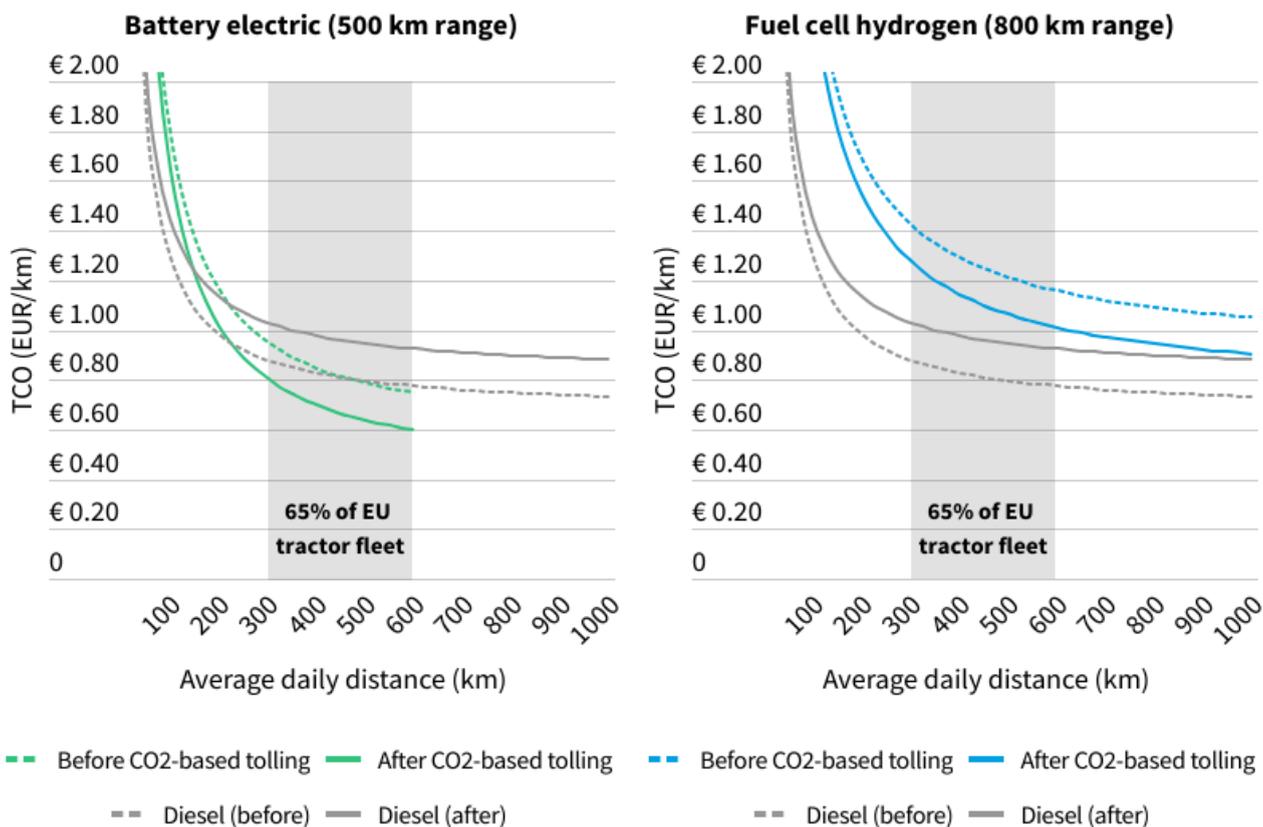
<sup>28</sup> ICCT (2023). A total cost of ownership comparison of truck decarbonization pathways in Europe. [Link](#).

<sup>29</sup> TRATON (2021). Deep dive e-mobility - the TRATON perspective. [Link](#).

<sup>30</sup> Other key initiatives are purchase grants or Truck-as-a-Service (TaaS) models for vehicles and support schemes for charging and refuelling infrastructure.

Tolling exemptions and reductions for ZEVs can reduce the cost gap with their diesel counterparts considerably, as do additional CO<sub>2</sub> charges on combustion trucks to internalise their climate costs. Figure 2 below illustrates how CO<sub>2</sub>-based tolling can help move forward TCO parity following the recently introduced tolling reform in Germany.

### TCO of a long-haul truck in Germany with CO<sub>2</sub>-based tolling (2025)



**Notes:** Illustrative TCO for a 40-tonne long-haul truck in Germany depending on the average daily distance driven. Includes vehicle depreciation, maintenance and repairs, energy costs, infrastructure costs, and toll charges. Takes into account Germany's recently introduced CO<sub>2</sub>-based tolling system.

**Sources:** T&E calculations based on TNO (2022) and Bundesgesetzblatt (2023).

Figure 2. TCO of a long-haul truck in Germany with CO<sub>2</sub>-based tolling (2025)

The graph shows that by 2025, electric long-haul trucks can beat their diesel counterparts across an increasing share of daily distance segments. Under the new law, battery electric and fuel cell hydrogen trucks benefit from a full exemption from the infrastructure charge until 2025 (and a discount of 75% thereafter), while they continue to pay the external cost charge for noise pollution. The TCO increase for diesel reflects the introduction of an external cost charge of 200 EUR/tonne CO<sub>2</sub>.

The financial impact of this reform is significant for transport operators. Toll charges for a long-haul diesel truck can amount to 25,000 EUR annually, or up to a quarter of the total TCO of a diesel truck. With Germany's reform, toll charges for diesel trucks were significantly increased and now amount to

46,500 EUR per year on average in the long-haul segment. Zero-emission trucks on the other hand pay less than 2,000 EUR annually until 2025, and less than 7,000 EUR thereafter.

To give a concrete example: Hauliers who purchase one of Daimler's new eActros 600 will save almost 45,000 EUR in their first year of operation. From 2026 onwards, the savings will amount to around 40,000 EUR. These savings, together with savings from using electricity instead of diesel fuel, will help offset the e-truck's initially higher upfront purchasing costs which Daimler estimates to be two to two and a half times higher than the diesel equivalent.

## 4. New obligations for EU member states

Following the 2022 reform of the Eurovignette directive, member states that levy truck tolls have to comply with four key obligations in regard to their current and future truck tolling systems, namely:

- CO<sub>2</sub>-based tolling,
- air pollution charging,
- the tolling of smaller trucks (from 3.5 tonnes GVW), and
- distance-based tolling on the core of the Trans-European Transport Network (TEN-T).

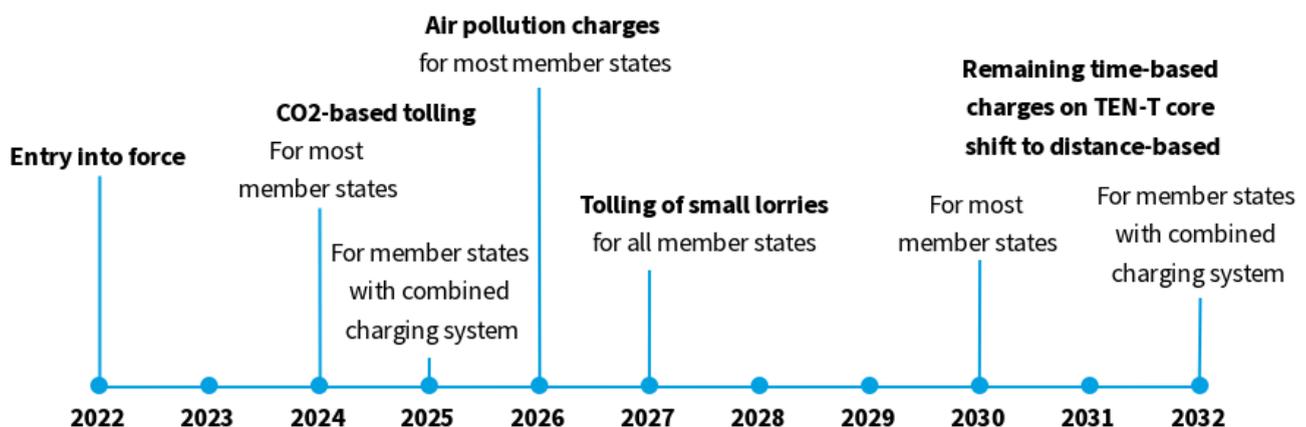


Figure 3. Timeline of new Eurovignette obligations<sup>31</sup>

### 4.1. Mandatory CO<sub>2</sub>-based tolling for trucks

Previously, the Eurovignette directive only obliged member states to vary infrastructure and user charges by GVW, the number of axles, and the EURO emission classes regulating pollutant emissions.<sup>32</sup> However, varying tolls according to pollutant emission standards has become largely redundant given that Europe's long-haul HDV fleet is increasingly dominated by vehicles type-approved under EURO VI.<sup>33</sup> Varying truck tolls for CO<sub>2</sub> on the other hand creates the necessary

<sup>31</sup> See the Annex of this briefing for detailed member state-specific deadlines.

<sup>32</sup> Varying the infrastructure charge for trucks according to EURO emission classes continues to be mandatory until CO<sub>2</sub> variation takes effect.

<sup>33</sup> ICCT (2022). Quantifying the long-term air quality and health benefits from Euro 7/VII standards in Europe. [Link](#).

steering effect towards zero-emission trucks, which alongside the greening of the electricity grid, enables the EU to reach its climate goals. To vary tolls for CO<sub>2</sub>, there are three options open to member states. These options are discussed in detail in the next section, with reference to both distance-based tolling and time-based vignettes.

### 4.1.1. Applying CO<sub>2</sub> variation

#### Distance-based tolls

Member states with distance-based tolls must vary truck tolls by CO<sub>2</sub> not later than 25 March 2024. Existing concession contracts can however be exempted. Countries with concessions must only apply CO<sub>2</sub> variation when the toll contract is newly-signed, renewed or substantially amended. Member states must adopt one of three implementation options, which relate to the toll's components, including potential components:

- Option 1: member states *vary the infrastructure charge component* of the toll according to the CO<sub>2</sub> emissions of the truck. Infrastructure charges are levied to recover the construction, maintenance and operational costs of the road, and in many tolling systems used to make up around 90% of the overall toll (for more efficient trucks).<sup>34</sup>
- Option 2: the member state *applies an external cost charge for CO<sub>2</sub>* on top of the infrastructure charge, leaving the infrastructure charge unchanged.
- Option 3: the third implementation option is to *do both of the above*: i.e. vary the infrastructure charge for CO<sub>2</sub>, and apply a CO<sub>2</sub> external cost charge.

The member states which decided to vary the infrastructure charge by CO<sub>2</sub> include Austria (from 01 January 2024),<sup>35</sup> Denmark (01 January 2025),<sup>36</sup> Germany (01 December 2023)<sup>37</sup> and the Netherlands (01 July 2026).<sup>38</sup> Belgium still has an existing public-private contract in Flanders and a concession contract in Wallonia and is therefore legally not obliged to apply CO<sub>2</sub>-based tolling,<sup>39</sup> but decided to introduce toll discounts for zero-emission trucks on a voluntary basis (from 01 January 2024 in Flanders and 01 July 2024 in Brussels and Wallonia).<sup>40</sup>

#### Vignettes / time-based user charges

Under the revised directive, new time-based road charges for trucks are from 2024 restricted to limited circumstances (2025 for combined charging system countries). From 2030/2032, time-based charges on the TEN-T core network will only be possible in certain exceptions.

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<sup>34</sup> For example, in Germany the infrastructure charge had previously made up 92% of the toll for a 40 tonne EURO VI long-haul truck. Older trucks pay more: While the infrastructure charge remained the same, the air pollution charge increased steadily for older EURO classes.

<sup>35</sup> RIS (2023). Bundesstraßen-Mautgesetz 2002, Fassung vom 13.03.2024. [Link](#).

<sup>36</sup> Retsinformation (2023). Lov om vejafgift. [Link](#).

<sup>37</sup> Bundesgesetzblatt (2023). Drittes Gesetz zur Änderung mautrechtlicher Vorschriften. [Link](#).

<sup>38</sup> Ministerie van Infrastructuur en Waterstaat (no date). Voorbereiding invoering vrachtwagenheffing. [Link](#).

<sup>39</sup> See Article 7(7) and 7(8) of the directive.

<sup>40</sup> Vlaanderen (2023). Tijdelijke vrijstelling betalingsverplichting voor emissievrij vrachtvervoer. [Link](#).

After the March 2024/2025 deadline, remaining time-based vignettes must be varied according to CO<sub>2</sub> emissions. Four countries have time-based charges that are linked to one another, namely Denmark, Luxembourg, the Netherlands and Sweden. These member states (sometimes referred to as the ‘original Eurovignette countries’) obtained a one-year extension to implement CO<sub>2</sub> variation, bringing their deadline to 25 March 2025.

Estonia has introduced CO<sub>2</sub> variation into its time-based user charge on 01 January 2024.<sup>41</sup> Those countries which are expected to continue their truck vignette systems over the long-term, including Latvia (deadline 25 March 2024), Luxembourg, and Sweden (25 March 2025) still have to carry out the reform. As explained above, most attention in this paper is focused on the implementation in respect of distance-based tolling, to which this section now returns.

### **How does CO<sub>2</sub> variation work for distance-based tolling?**

Under option 1 (described above), the directive provides that the variation of the infrastructure charge "*shall not be designed to generate additional revenue*". This means that the revenue loss due to reductions or exemptions for more efficient ICE trucks and zero-emission trucks need to be compensated for by increasing the infrastructure charge for the least efficient vehicles.

Differentiated CO<sub>2</sub> charging is made possible by banding, namely the allocation of vehicles into one of five different CO<sub>2</sub> emission classes. The allocation depends on a vehicle's certified CO<sub>2</sub> emissions as set in the certification regulation for HDVs (which in turn are the results under the VECTO certification procedure, the EU's *Vehicle Energy Consumption calculation Tool*)<sup>42</sup> as well as the emissions reduction trajectory under the current 2019 CO<sub>2</sub> emission standards for new HDVs.<sup>43</sup> This emissions reduction trajectory moves downward, re-shaping the vehicles newly-included within classes 2 and 3 over successive years, and reaching a 15% reduction by 2025 and 30% by 2030 against a 2019/2020 reference period, as shown in the example below (see Figure 4).

This trajectory is applied to all new vehicle sub-groups currently regulated under the current 2019 CO<sub>2</sub> standards (heavy lorries). For those truck sub-groups which will be regulated for the first time under the new 2024 CO<sub>2</sub> standards (i.e. medium lorries, other heavy trucks, including those with special axle configurations as well as vocational vehicles), separate reduction trajectories will be set based on the finally agreed CO<sub>2</sub> reduction targets.<sup>44</sup>

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<sup>41</sup> Riigi Teataja (2023). Liiklusseaduse ja autoveoseaduse muutmise seadus. [Link](#).

<sup>42</sup> European Union (2020). Commission Regulation (EU) 2017/2400 of 12 December 2017 implementing Regulation (EC) No 595/2009 of the European Parliament and of the Council as regards the determination of the CO<sub>2</sub> emissions and fuel consumption of heavy-duty vehicles. [Link](#).

<sup>43</sup> European Union (2019). Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO<sub>2</sub> emission performance standards for new heavy-duty vehicles. [Link](#).

<sup>44</sup> See Article 7ga(7) of the directive.

<b>CO<sub>2</sub> emission class</b>	<b>Vehicle definition</b>
Class 1	Vehicles not belonging to any other class
Class 2	CO <sub>2</sub> emissions more than 5% but not more than 8% below the emissions reduction trajectory
Class 3	CO <sub>2</sub> emissions more than 8% below the emissions reduction trajectory but not within the classes below
Class 4 (LEV)	CO <sub>2</sub> emissions more than 50% below the reference CO <sub>2</sub> emissions
Class 5 (ZEV)	Vehicles without an engine or with one that emits less than 3 gCO <sub>2</sub> /tonne-kilometre or 1 gCO <sub>2</sub> /passenger-kilometre <sup>45</sup>

*Table 1. CO<sub>2</sub> emission classes*

Trucks registered before the beginning of the reference period of the HDV CO<sub>2</sub> standards, i.e. before July 2019, will be automatically allocated to CO<sub>2</sub> emission class 1 as well as new vehicles registered after this deadline with little or no efficiency improvements. Classes 2 and 3 essentially comprise more efficient internal combustion engine (ICE) trucks. The bands for classes 4 (low-emission vehicles, or LEVs) and 5 (ZEVs) do not change annually.

Within the VECTO classification system, vehicle sub-group 5-LH trucks are two-axle tractor units certified over a long-haul duty cycle, the most commonly used truck in Europe. They are used in the example below due to their high share of annual truck sales in Europe (62% of total HDV sales during the 2020/2021 reporting period).<sup>46</sup> Figure 4 illustrates the emissions reduction trajectory for vehicle sub-group 5-LH based on the reference CO<sub>2</sub> emissions of all new vehicles in that sub-group during the reference period 2019/2020 (shown in grey). As explained above, the coloured lines map the CO<sub>2</sub> emissions ceilings that govern the allocation of individual vehicles to CO<sub>2</sub> emission classes in a given year.

<sup>45</sup> Council of the European Union (2024). Proposal for a Regulation amending Regulation (EU) 2019/1242 as regards strengthening the CO<sub>2</sub> emission performance standards for new heavy-duty vehicles. [Link](#).

<sup>46</sup> ICCT (2023). CO<sub>2</sub> emissions from trucks in the European Union: An analysis of the 2020 reporting period. [Link](#).

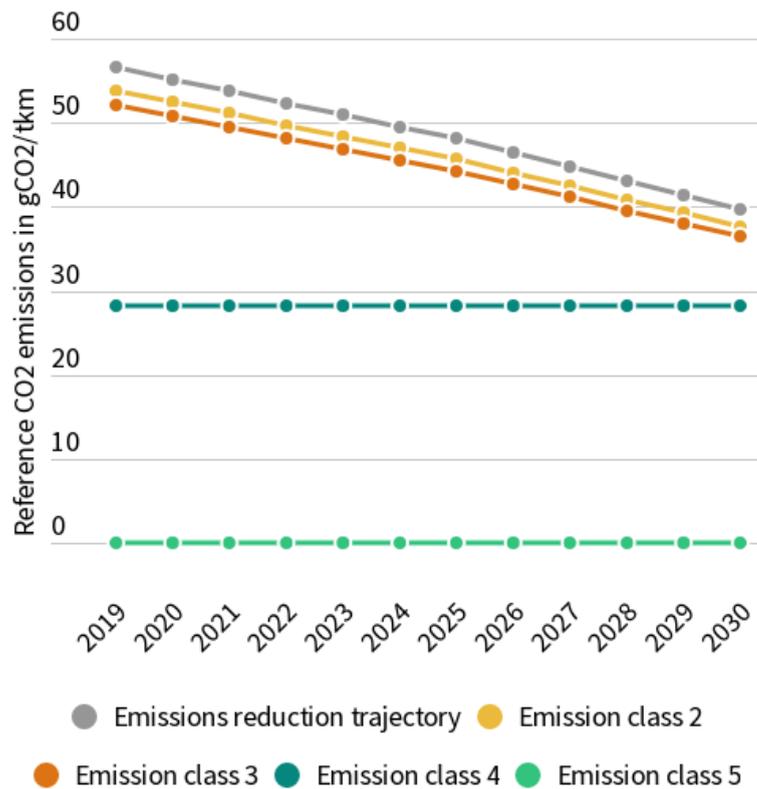
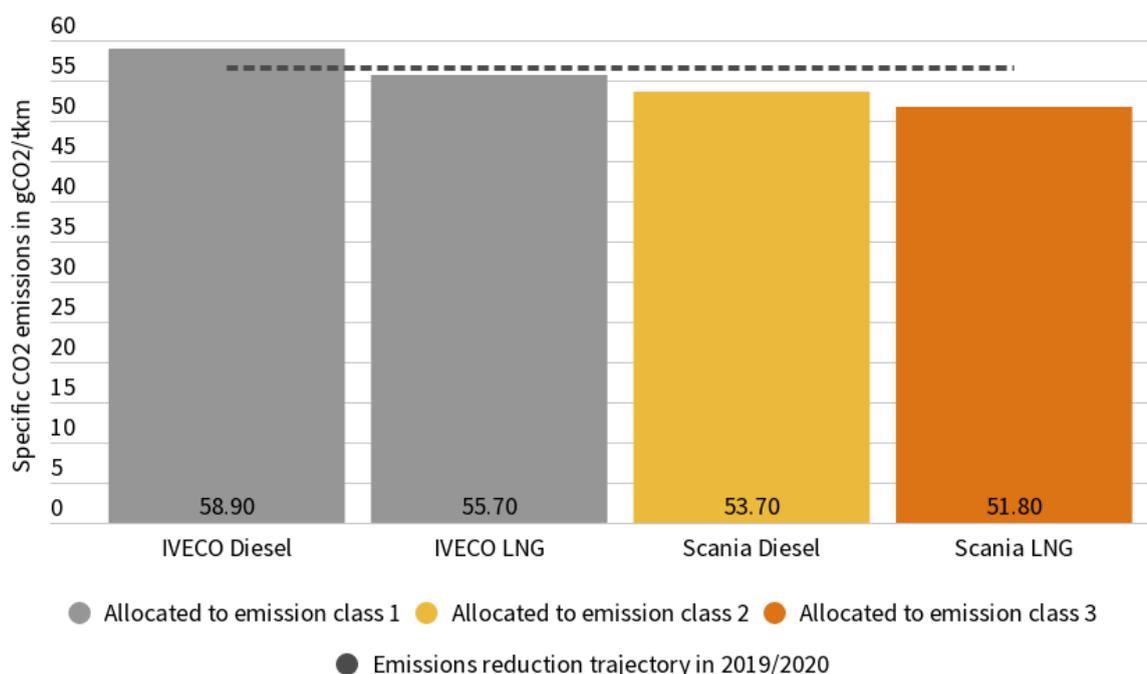


Figure 4. Emissions reduction trajectory for vehicle sub-group 5-LH  
 Source: T&E calculations based on European Union (2021) and EEA (2021)

### Which vehicle technologies will benefit

The CO<sub>2</sub> emission classes are technologically neutral. Looking for example at diesel- and gas-powered vehicles, it is (and will remain) necessary to examine a vehicle's certified CO<sub>2</sub> emissions to determine whether particular vehicles fall into emission class 1, 2 or 3. For example, analysis of the 2019/2020 monitoring and reporting data for new IVECO and Scania long-haul trucks indicate that IVECO's diesel- and gas-powered sales in that year both fall into emission class 1. On the other hand, due to its improved fuel efficiency performance, Scania's diesel truck falls into emission class 2, while its gas-powered truck falls into emission class 3 (see Figure 5 below).



**Notes:** Certified CO<sub>2</sub> emissions of IVECO and Scania trucks in sub-group 5-LH for the reference period 2019/2020. Bar colours reflect the respective CO<sub>2</sub> emission class to which the vehicles would be allocated.

**Sources:** T&E calculations based on European Union (2021), EEA (2021), ICCT (2021).

Figure 5. Certified CO<sub>2</sub> emissions of different drivetrain technologies in vehicle sub-group 5-LH

### Toll reduction by CO<sub>2</sub> emission class

Member states are permitted to introduce a full toll exemption (100%) for ZEVs on the infrastructure charge and keep this in place until the end of 2025, after which the reduction must amount to 50-75% compared to the infrastructure charge applied to ICE trucks in emission class 1. If a member state decides to continue the variation of infrastructure charges based on the EURO classes, the reduction must amount to 50-70% compared to the infrastructure charge of the most efficient ICE trucks in emission class 1. For example, with its recent reform, Germany has made use of this option and fully exempts ZEVs from the infrastructure charge until 2025, while reducing the discount for subsequent years to 75%. The flexibility given to member states to adjust toll reductions enables them to respond to increasing ZEV sales and a gradually changing fleet profile towards 2030 and beyond, while keeping tolling revenue stable over time.

CO <sub>2</sub> emission class	Vehicle definition	Allowed toll reduction compared to class 1
Class 1	Vehicles not belonging to any other class	-
Class 2	CO <sub>2</sub> emissions 5 - 8% below the emissions reduction trajectory	5 - 15%

Class 3	CO <sub>2</sub> emissions >8% below the emissions reduction trajectory but not within the classes below	15 - 30%
Class 4	CO <sub>2</sub> emissions more than 50% below the reference CO <sub>2</sub> emissions (LEVs)	30 - 50%
Class 5	Zero-emission vehicles (ZEVs)	50 - 75% (100% until 2025)

Table 2. Reduction for CO<sub>2</sub> variation by CO<sub>2</sub> emission class

### Assessment of vehicle re-allocation 6 years after first registration

Six years after first registration, member states must reassess the allocation of vehicles to emission classes 2 and 3, and, where relevant, reclassify the current vehicle fleet based on the updated emission class thresholds.<sup>47</sup> The purpose of this process is to continue to promote the renewal of the fleet and to avoid the distortion of the second-hand market.<sup>48</sup> Also, the fact that ICE trucks with improved fuel efficiency only benefit from reductions for a limited period of time helps maintain overall momentum towards road freight decarbonisation.

Whether, for example, a class 2 or 3 vehicle first registered in 2023 moves to a lower class in 2029 will depend on how it performs on the emission reduction trajectory (described and mapped above) at the later date. Overall however, it is fair to say that a high proportion of class 2 and 3 vehicles will move down the emission classification system over time, with their toll reductions decreased (or ended) as these vehicles age.

### 4.1.2. CO<sub>2</sub> external cost charges

#### Vary the infrastructure charge, apply a CO<sub>2</sub> external cost, or do both

CO<sub>2</sub> variation of the infrastructure charge works like a bonus-malus system: Toll reductions for cleaner trucks need to be financed by slightly higher charges for the most-polluting vehicles (or, alternatively, overall tolling revenues need to be reduced). This is to ensure that the reform does not generate additional revenue. On the other hand, a CO<sub>2</sub> external cost charge can be applied without granting any reductions to cleaner trucks. A reform using CO<sub>2</sub> external cost charging does not need to be revenue neutral, i.e. the vehicles that pollute more must pay more, and reductions for cleaner trucks need not be given. The Czech Republic (from 25 March 2024)<sup>49</sup> and Hungary (01 January 2024)<sup>50</sup> opted to levy a CO<sub>2</sub> external cost charge instead of varying the infrastructure charge.

<sup>47</sup> See Article 7g-a 1a of the directive.

<sup>48</sup> See Recital 32 of the directive.

<sup>49</sup> Zákony pro lidi (2024). Nařízení vlády č. 40/2024 Sb. Nařízení vlády, kterým se mění nařízení vlády č. 240/2014 Sb., o výši časových poplatků, sazeb mýtného, slevy na mýtném a o postupu při uplatnění slevy na mýtném, ve znění nařízení vlády č. 479/2020 Sb.. [Link](#).

<sup>50</sup> Nemzeti Jogszabálytár (2024). 209/2013. (VI. 18.) Korm. rendelet. [Link](#).

Austria and Germany have decided to introduce a CO<sub>2</sub> external cost charge in addition to varying the infrastructure charge. Deploying both tools - varying the infrastructure charges, and applying an external cost charge - is potentially the most interesting option, offering the most help to transition to cleaner fleets. As already mentioned, the infrastructure charge part of the reform should be revenue neutral (higher charges for the most-polluting vehicles offset by reductions for cleaner trucks). Then external cost CO<sub>2</sub> charging on top of this nudges new truck purchasing to the best-performing emission classes.

Member states have significant discretion in terms of the level of the CO<sub>2</sub> external cost charge. The directive contains reference values for external cost charges but member states can apply higher such charges where they justify it. However, they cannot apply lower charges than set out by the reference values.

The directive's reference value for the external cost of CO<sub>2</sub> corresponds to 100 EUR/tCO<sub>2</sub>, in line with the central estimate in the 'Handbook on the external costs of transport'.<sup>51</sup> However, this figure only reflects the climate change costs in the short- and medium-run, whereas the true burden of emitting CO<sub>2</sub> needs to take its longer term impact into account.<sup>52</sup> To also cover climate-related externalities in the longer term, the directive gives member states the option to increase the reference value of the charge by a factor of 2, i.e. equivalent to up to 200 EUR/tCO<sub>2</sub>. This higher value is consistent with more recent estimates, e.g. the German Environment Agency puts climate externalities at 195 EUR/tCO<sub>2</sub> today, and 215 EUR/tCO<sub>2</sub> by 2030.<sup>53</sup>

The table below sets out the external cost charge corresponding to 100 EUR/tCO<sub>2</sub> for the dominant 40-tonne long-haul trucks in the EU. For such trucks, approved under EURO VI and falling into emission class 1, the external cost charge for CO<sub>2</sub> is 8 cent per kilometre. Where national governments decide to price CO<sub>2</sub> in a longer-term frame, and apply up to 200 EUR/tCO<sub>2</sub>, the external cost for CO<sub>2</sub> also doubles, rising to a maximum of 16 cent per kilometre for the same truck. In other words, an increase in the cost applied to CO<sub>2</sub> from 100 to 200 EUR/tCO<sub>2</sub> results in the doubling of the cents-per-kilometre figures shown in the final column to the right of the table below.

Vehicle class		Cent/vehicle-kilometre	Interurban roads (including motorways)
Heavy goods vehicle having a technically permissible maximum laden mass above 32 tonnes or having 5 or more axles	CO <sub>2</sub> emission class 1	EURO 0	9.1
		EURO I	8.1
		EURO II	

<sup>51</sup> European Union (2020). Handbook on the external costs of transport. [Link](#).

<sup>52</sup> The short / medium time can be variously defined, but is generally taken as within a decade or so. However, the worst societal impacts of rising CO<sub>2</sub> concentrations are expected to occur beyond this timeframe.

<sup>53</sup> Umweltbundesamt (2020). Methodenkonvention 3.1 zur Ermittlung von Umweltkosten. Kostensätze. [Link](#).

		EURO III	
		EURO IV	8.0
		EURO V	
		EURO VI	
	CO <sub>2</sub> emission class 2	7.6	
	CO <sub>2</sub> emission class 3	7.2	
	Low-emission vehicle	4.0	
	Zero-emission vehicle	0	

*Table 3. Reference values for the external-cost charge for CO<sub>2</sub> emissions for trucks*

*Source: Table 1 of Annex IIIc of the directive*

### **Review planned for 2027**

In 2027, the European Commission will assess the implementation and effectiveness of CO<sub>2</sub> variation, together with its coherence with the planned revision of other EU legislation, namely the emissions trading system for road transport (ETS II) and the energy taxation directive (ETD). The Commission may then submit a legislative proposal to amend the provisions of the Eurovignette directive if appropriate. While the revised Eurovignette directive gives member states the option of discontinuing CO<sub>2</sub> variation where the EU's emission trading system is extended to cover road transport, the levels currently in discussion for road transport under the ETS II do not come close to the mid-term estimates for the external cost of CO<sub>2</sub> of 100 EUR/tCO<sub>2</sub>. In other words, transitioning to cleaner trucking, and lowering freight emissions in the coming years, will require CO<sub>2</sub> variation through the 2020s and beyond.

In practice, the 2027 review is likely to be an opportunity to grow the complementarity between member states' toll systems on the one hand, and the emissions trading system on the other as both systems have key roles to play in delivering the transport transition. In concession countries, for example, France, Italy, Greece and Portugal, CO<sub>2</sub> variation risks being applied slowly (as toll contracts are renewed or substantially amended). ETS II offers these member states (and Croatia and Ireland) a floor CO<sub>2</sub> price, boosting their ability to transition trucking.

Outside of concession countries, government-directed distance-based tolling has great capacity to re-distribute revenue within the member state (e.g. for equity reasons to help smaller trucking operators to transition). Between richer and less wealthy member states, the ETS II can help with redistribution through its associated Social Climate Fund, again based on equity.

## 4.2. Mandatory air pollution charges for trucks

The Eurovignette reform also requires countries with distance-based tolls to apply air pollution charges for trucks from 25 March 2026. Today, five member states already charge trucks for their air pollution: Austria, Belgium, Czech Republic, Germany and Hungary. Additional countries will need to apply air pollution charges by the March 2026 deadline, namely, Bulgaria, Poland, Slovakia and Slovenia. Planned tolling reforms in Lithuania and Denmark (in 2024 and 2025 respectively) should see these countries charge for air pollution by March 2026. The Netherlands and Romania are expected to join those countries above as part of its reform in 2026.

Where concession contracts are renewed or substantially amended after 25 March 2026, air pollution charges will need to be levied. Over time, this will see a further six member states (Croatia, France, Greece, Italy, Ireland and Portugal) gradually charging for air pollution, in line with the countries above. The remaining member states apply truck vignettes (which do not fall under a legal duty to apply air pollution charges) or do not toll trucks.

While vans and minibuses are not within scope here, it is worth briefly noting that where these vehicles are subject to tolls or vignettes, the rates must be varied for environmental performance from January 2026, where technically practicable.<sup>54</sup>

### Dealing with the risk of traffic diversion

If applying an external cost air pollution charge on a tolled highway would divert traffic to a sensitive untolled route, the directive offers a solution. If the member state shows that adding an external air pollution charge “*would lead to the diversion of the most polluting vehicles, resulting in negative impacts on road safety and public health*”, it can avail of a derogation and not apply the charge on that section of highway.<sup>55</sup> With this provision, difficult local situations, or “*duly justified cases*” as the directive refers to them, need not influence the national level of the external cost charge.

### Reference values, and beyond the reference values

Before March 2022, member states were constrained by maximum limits on air pollution charges set out in the directive. The revised law replaces maxima with reference values. Member states can exceed reference values for air and noise pollution “*guided by the principle of efficient pricing that is a price close to the social marginal cost of the usage of the vehicle charged*” and provided that “*all parameters, data and other information necessary to understand how the various external-cost elements are calculated shall be made public*”.<sup>56</sup>

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<sup>54</sup> See Article 7gb(2) of the directive. For vans and minibuses, this provision gives member states the flexibility to “*choose to apply reductions to zero-emission vehicles only, without applying any variation to other vehicles and without notifying the Commission*”.

<sup>55</sup> See Article 7ca(3) of the directive.

<sup>56</sup> See Annex IIIa(3) of the directive.

In the Alps, for example, research indicates that the external costs of air and noise pollution from road transport are approximately 4 times higher compared to lowland regions.<sup>57</sup> The impact of air pollution is far higher due to inversion (which traps pollutants near the ground), while gradients and altitude lead to greater levels of direct exhaust emissions. Noise pollution is also worse due to gradients, inversion and the amphitheatre effect. To go higher than the reference values, member states will need to notify and justify their proposals to the Commission (in line with the procedures set out in the revised directive), and are aided in this task by a growing body of literature examining the true impact of air and noise pollution in given regional / sensitive settings.

The reference values in the revised directive for air and noise external costs as applied to a typical long-haul 40t truck are reproduced below. The reference figure stands just below 1c per kilometre for a EURO VI vehicle. The older the truck, the more its use is financially discouraged by higher reference rates. Overall, making air pollution external cost charges mandatory is a big step towards better recovering the costs of trucking’s impact on human health and the environment.

Vehicle class	Cent/vehicle-kilometre	Suburban roads	Interurban roads
Heavy goods vehicle having a technically permissible maximum laden mass above 32 tonnes or having 5 or more axles	EURO 0	33.5	19.4
	EURO I	25.0	14.1
	EURO II	24.9	13.9
	EURO III	20.1	11.1
	EURO IV	14.2	7.5
	EURO V	7.6	3.8
	EURO VI	3.4	0.8
	Less polluting than EURO VI, including zero-emission vehicles	2.8	0.3

Table 4. Reference values of the external cost charge for air and noise pollution.

Source: Table 1 of Annex IIIb of the directive.

### 4.3. Phasing out time-based user charges on the TEN-T core network

Compared to time-based vignettes, distance-based road tolls are more efficient and fairer. Distance-based tolling also better incentivises the purchase of more environmentally friendly vehicles, improving the logistics efficiency of road haulage.<sup>58</sup> From 2024, the introduction of new time-based road vignettes for trucks will therefore be restricted to limited circumstances. Moreover,

<sup>57</sup> European Commission (2020). Handbook on the external costs of transport. [Link](#).

<sup>58</sup> Transport & Environment (2017). The benefits of road tolls. [Link](#).

if time-based vignettes remain after 25 March 2024, they must be varied according to truck CO<sub>2</sub> emissions.

From March 2030, member states have to discontinue user charges for HDVs on the TEN-T core network. Member states with a common system for user charges benefit from a longer deadline and will be required to discontinue or adapt it by March 2032.<sup>59</sup> However, member states with vignettes may continue to apply such user charges on sections of the TEN-T core network in duly justified cases where applying a distance-based toll would either involve disproportionate administrative, investment and operating costs compared to the expected revenue, or lead to the diversion of traffic with negative impacts on road safety or on public health. As noted above, the overall share of truck movements subject to vignettes from 2026 is set to be small (applying in member states with 4% of EU truck activity).

#### 4.4. Mandatory tolling of small trucks

Trucks are defined as having a GVW exceeding 3.5 tonnes. However, a small number of member states that apply tolls to trucks do not start at 3.5 tonnes, namely, Denmark, Germany, Luxembourg and Sweden. These member states will continue to enjoy significant flexibility<sup>60</sup> up until March 2027, but will need to toll all trucks from 3.5 tonnes GVW after this date.

Given its central role as a transit country, the issue is particularly relevant in Germany where trucks 3.5 to 7.5 tonnes are currently still exempt from tolls. However, this will change from July 2024 when all trucks will be charged. Luxembourg and Sweden also currently do not charge tolls on trucks with a GVW of less than 12 tonnes. Denmark's reform plan, agreed in June 2022, will see trucks between 3.5 and 12 tonnes tolled slightly earlier than the EU deadline (01 January 2027, rather than 25 March 2027). The planned reform in the Netherlands is on track to toll trucks from 3.5 tonnes on 01 July 2026.

On foot of pressure during negotiations from Germany, a so-called 'craftsperson exemption' was included in the final text of the revision. Under this provision, member states may reduce or exempt trucks between 3.5 and 7.5 tonnes GVW "*used for carrying materials, equipment or machinery for the driver's use in the course of the driver's work, or for delivering goods which are produced on a craft basis, where the transport is not effected for hire or reward*".<sup>61</sup> Member States may also exempt ZEVs with a GVW up to 4.25 tonnes due to their higher drivetrain weight.

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<sup>59</sup> Currently the truck vignettes in Denmark, Luxembourg, the Netherlands and Sweden are linked, but given the reform pending in Denmark and the Netherlands, this provision will likely only apply to the two remaining countries by the turn of the decade.

<sup>60</sup> A member state may choose to apply tolls only to trucks of 12 tonnes or more where it considers that tolling vehicles of less than 12 tonnes would (a) create significant adverse effects on the free flow of traffic, the environment, noise levels, congestion, health, or road safety, due to traffic diversion; (b) involve administrative costs of more than 15% of the additional revenue resulting from that extension; or (c) concern a category of vehicles which does not cause more than 10% of the chargeable infrastructure costs". See Article 7(13) of the directive.

<sup>61</sup> See Article 7(9)(b) of the directive.

## 5. Policy recommendations

The road freight sector needs robust carbon pricing to put more efficient trucks on the road and bring down its emissions. Member states face different starting points and levels of political opportunity to address climate emissions from trucks on the one hand, and air and noise pollution from trucks on the other. Overall, however, the Eurovignette revision is a rich reform package, offering strong scope to match political ambition with policy measures.

The requirement to vary truck tolls by CO<sub>2</sub> is the centrepiece of the reform. Member states that toll trucks by distance - and where governments have retained the power to vary toll charges - are best placed to deliver change. These countries are Austria, Belgium, Bulgaria, Czech Republic, Germany, Hungary, Germany, Hungary, Poland, Slovakia and Slovenia. The majority of these countries have carried out the reform in time. However Bulgaria, Poland, Slovakia and Slovenia have not, and therefore need to do so as quickly as possible in order to comply with EU law. Lithuania (2024), Denmark (2025), the Netherlands and Romania (both 2026) will switch from time- to distance-based tolling systems soon. Denmark and the Netherlands have already passed laws to introduce CO<sub>2</sub>-based tolling systems, while Lithuania and Romania are in full preparation to do so.

Tolling based on the amount of time spent in a country (rather than the distance travelled), does not recover external costs in a proportionate way, and has been in decline across the EU. By 2026, Estonia, Latvia, Luxembourg and Sweden are expected to be the only remaining member states with time-based truck charges, meaning this type of tolling (often called ‘vignettes’) would apply in countries that together account for just 4% of EU truck activity. From 2030/2032, time-based charges on the TEN-T core network will only be possible in very limited circumstances. From 25 March 2024 (2025 for combined charging system countries such as Luxembourg and Sweden), member states that retain vignettes have to vary them for CO<sub>2</sub>. Only Estonia has carried out the reform so far, while Latvia has missed the deadline, and Luxembourg and Sweden are approaching their deadline which is in a year from now.

In summary, by 2026, distance- and time-based tolls varied by CO<sub>2</sub> are expected to be in force in 17 member states. This means that 62% of EU truck activity (measured in tonne-kilometres) will have a strong incentive to switch to ZEVs.

The most effective way to implement this reform is carrot-and-stick, that is to reduce tolls for cleaner trucks, and increase them for trucks that emit more. Incentivising cleaner trucks while at the same time disincentivising less efficient ones will most influence a truck’s TCO and therefore, new truck purchases, a strategy that best reduces diesel consumption and emissions.

Transitioning to zero-emission trucks can be further aided by the use of new revenue from toll reform. In particular, external cost charging (for CO<sub>2</sub>, air and noise pollution) will supplement current revenue streams, and can be re-distributed equitably, with due attention to the reduced capacity of smaller truckers to finance their switch to zero-emission trucks.

The highway networks of five member states are dominated by concession contracts - France, Italy, Croatia, Greece and Portugal, while Ireland's and Spain's highway network is partly concession-controlled. Under existing concession agreements, governments can typically only vary toll charges by agreement with the concession holder (or under a formal procedure, often decades old, which has little regard to CO<sub>2</sub>, air pollution or noise). A proactive approach on existing contracts will be needed by concession countries. Otherwise, they risk a slower transition. These governments need to engage with existing concessionaires to persuade them to revise tolls in a revenue-neutral way (i.e. reductions for cleaner trucks offset by increases for trucks that emit more). While the directive does not demand such action, it certainly points in this direction.<sup>62</sup>

The next upcoming deadline is 25 March 2026, when countries with government-directed distance-based tolling also need to charge trucks for air pollutant emissions. Five member states already apply air pollution charges: Austria, Belgium, Czech Republic, Germany and Hungary. In terms of implementation, it will be important for member states to consider their revisions in an integrated way, i.e. follow a strategic planning process with both the March 2024 and March 2026 deadlines in mind. For example, Hungary has done just that by already introducing air pollution charges as part of its bigger reform carried out in 2023.

A small number of member states which toll trucks exempt some or all vehicles between 3.5 and 12 tonnes gross vehicle weight (GVW), namely Denmark, Germany (3.5 - 7.5 tonnes), Luxembourg, the Netherlands and Sweden. Under the revision, these exemptions must be removed by 25 March 2027 at the latest. Here, Germany serves as a good example as the country decided to extend tolling to all vehicles from 3.5 tonnes as part of its overall reform.

## Further information

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<sup>62</sup> Where concession tolls are not varied for CO<sub>2</sub>, Article 7ca provides that “member states may assess the possibility of applying an external-cost charge for CO<sub>2</sub> emissions and for air pollution or discounts, related to those emissions”, and that “the result of that optional assessment, including a justification of the reason why the external-cost charge or discount is not applied, shall be notified to the Commission”. During inter-institutional negotiations between Parliament and Council, the Parliament sought a stronger provision but concession countries declined saying they could not negotiate effectively with concessionaires if binding commitments were placed in EU law.

## Annex. Obligations for EU member states

Member state	Entry into force of new obligations			
	CO <sub>2</sub> -based tolling	Air pollution charges [1]	Distance-based tolling on TEN-T core [2]	Tolling of small lorries 3.5 - 12 tonnes [3]
Austria	March 2024	In force	In force	In force
Belgium	March 2024	In force	In force	In force
Bulgaria	March 2024	March 2026	In force	In force
Czech Republic	March 2024	In force	In force	In force
Denmark	March 2025	--- [1]	March 2032	March 2027
Germany	March 2024	In force	In force	March 2027 [4]
Estonia	March 2024	---	March 2030	In force
Croatia	No truck tolls, or existing concessions exempt until renewed or substantially amended [5]			
Cyprus				
Finland				
France				
Greece				
Ireland				
Italy				
Spain				
Latvia				
Lithuania	March 2024	--- [1]	March 2030	In force
Luxembourg	March 2025	---	March 2032	March 2027
Hungary	March 2024	March 2026	In force	In force
Malta	Does not apply truck tolls			
Netherlands	March 2025	--- [1]	March 2032	March 2027

Poland	March 2024	March 2026	In force	In force
Portugal	Existing concessions exempt until renewed or substantially amended [5]			
Romania	March 2024	--- [1]	March 2030	In force
Slovenia	March 2024	March 2026	In force	In force
Slovakia	March 2024	March 2026	In force	In force
Sweden	March 2025	---	March 2032	March 2027

### Notes

[1] Vignette countries are not required to charge for air pollution whereas member states with distance-based tolling must do so by March 2026. (Existing concessions can be exempted until they are renewed or substantially amended). Vignette countries shifting to distance-based tolls become subject to the requirements governing distance-based tolling when they transition. For Denmark, Lithuania, the Netherlands and Romania, the transition is expected until 2026.

[2] After March 2030, member states may continue to apply user charges on the TEN-T core network in duly justified cases or by establishing a combined charging system.

[3] Trucks with 3.5 - 7.5 tonnes GVW used for carrying materials, equipment or machinery on a craft basis can be exempted from road tolls. ZEVs up to 4.25 tonnes GVW can also be exempted.

[4] Currently, Germany is tolling all trucks from 7.5 tonnes GVW. From 01 July 2024, all trucks from 3.5 tonnes will be tolled.

[5] Member states which do not toll trucks are exempt from the obligation to introduce CO<sub>2</sub>-based tolling. Member states with concession tolls are also exempt from the new obligations until contracts are newly introduced, renewed or substantially amended.

**Sources:** European Commission (2017), European Union (2022), Government authorities (various dates).