



# How to buy an electric truck

Public funding helps hauliers to deliver on zero emission road freight

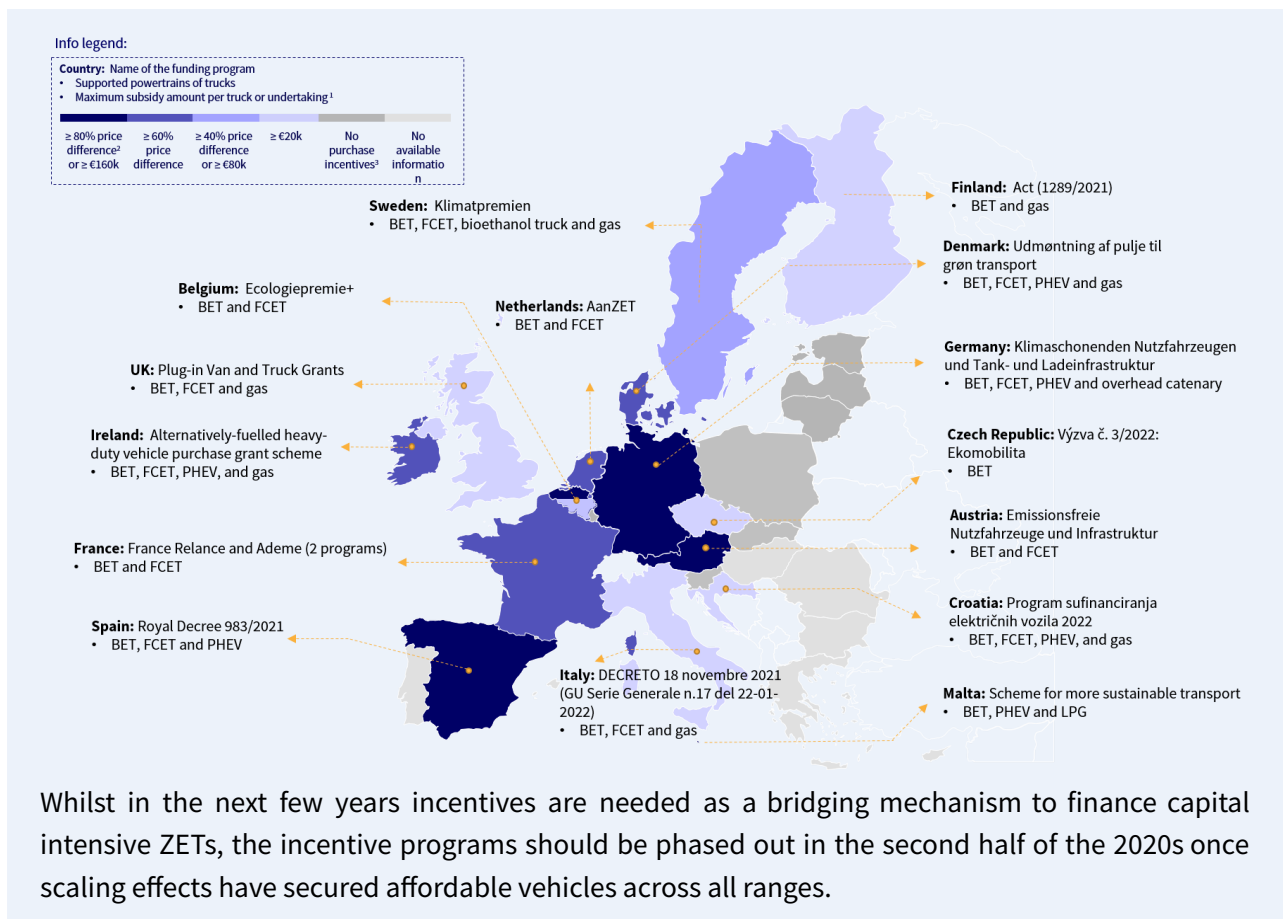
November 2022

## Summary

To tackle high emission levels from road freight and clean up trucks on European roads, a rapid rollout of zero emission trucks (ZET) is a much needed and effective action. Fully decarbonising the EU's truck fleet is crucial to reach the climate neutrality target by 2050. They are in high demand amongst first mover hauliers and if European truck makers make good on their public announcements, 44% of new truck sales will be zero emissions by 2030. Some manufacturers even aim to reach 60% ZET sales by then. Thanks to increasing production volumes and low operational costs for battery electric trucks (BETs), total cost of ownership (TCO) parity with diesel trucks is around the corner. Recent studies by environmental organisations, research groups and truck makers indicate long-haul BETs will reach TCO parity before or by the mid 2020s, depending on the country and available policy incentives. However, high upfront vehicle costs for the large number of small and medium sized hauliers in Europe can still pose a barrier in the early years.

Public financial incentives have proven to be an effective catalyst and temporary fix for initially higher vehicle costs of electric cars whilst production volumes are increasing and eventually bringing prices down. They can be the dealbreaker to spur road freight's zero emission transition, a sector driven by techno-economic considerations. This briefing maps the available support across Europe (see map below) and suggests ways for national governments and the EU to improve their support schemes. Of the 16 national purchase incentives, Austria, France, Germany, the Netherlands and Spain are successfully bridging the investment gap between a diesel truck and a ZET by compensating up to 80% of the difference in costs. The financial support in Denmark, Ireland, Spain and the United Kingdom is encouraging, but not yet high enough to sufficiently help (especially smaller) hauliers jump over the price hurdle. Bulgaria, Estonia, Latvia, Lithuania, Greece, Hungary, Portugal, Romania, Slovakia and Slovenia do not have nor are planning to put a ZET subsidy scheme in place.

Funds for the corresponding heavy-duty charging and refuelling infrastructure are available in 9 countries, while 3 are in the planning process. At EU level the Connecting Europe Facility (CEF) and the AFIF (the EU's budget for expanding sustainable road infrastructure) offer financial levers to accelerate the installation of corresponding zero emission infrastructure across Europe.



## 1. Road freight heading for zero emission

The emissions from trucks are disproportionately high. Whilst representing only 2% of vehicles on the road, they are responsible for 26% of EU road transport emissions<sup>1</sup>. With truck activity levels expected to continue growing by almost 50% until the end of the decade in a business as usual scenario<sup>2</sup>, a rapid transition to zero emission vehicles is inevitable. Zero emission trucks (ZETs) run without tailpipe emission and comprise two drivetrain technologies: battery electric (BET) and fuel cell electric trucks running on green hydrogen (FCET). They are the only viable technological solution to reduce road freight emissions quickly enough while also eliminating harmful air and noise pollution levels. ZETs are in high demand amongst first mover hauliers and if European truck makers make good on their public announcements, 44% of new truck sales will be zero emissions by 2030. Some manufacturers even aim to reach 70% ZET sales by then.

The European road freight sector will be in the limelight of EU policy making next year with the upcoming revision of the heavy duty vehicle (HDV) CO<sub>2</sub> standards. To align this piece of legislation with the EU's Green Deal objective to decarbonise all sectors by 2050, it is expected that the European Commission will increase the targets for 2030, while also setting a date for a 100% zero emissions sales target. This will

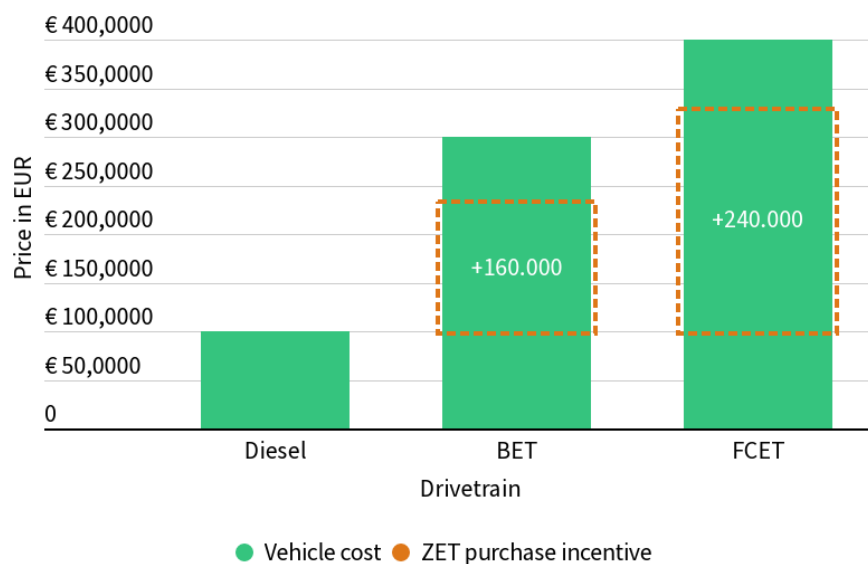
<sup>1</sup> ACEA (2022). Vehicles In Use Europe 2022. [link](#) and UNFCCC (2022), National Inventory Submissions 2022. [link](#)

<sup>2</sup> T&E (2022). Addressing the heavy-duty climate problem. [link](#)

trigger mass production of zero emission trucks (ZETs) in the 2020s and 2030s, which will in turn bring down their currently high upfront purchasing costs. And it will ensure that truckmakers live up to their announcements.

Purchase decisions in the road freight sector are driven by total cost of ownership (TCO) considerations. When making a purchase or leasing decision, hauliers take into account all truck-related costs over the vehicle's entire use period. Besides the purchase or leasing costs, this includes energy and maintenance costs, and in many European jurisdictions tolling costs as well. Once a zero emission alternative is cheaper to own and operate than its diesel counterpart, so-called TCO parity has been reached. This is around the corner. A recent study done by the Netherlands Organisation for Applied Scientific Research (TNO) and commissioned by T&E shows that it is feasible from an economic and technological standpoint to have 100% zero emission vehicle sales for urban and regional delivery and long-haul trucks in all EU countries.

In the next few years of market introduction, the investment cost for a zero emission vehicle (also called capital expenditure or capex) will be high. These initially high investments can deter especially SMEs from purchasing a ZET as the freight sector is predominantly composed of small and medium sized enterprises (SMEs). But, as evidenced by the TNO study, savings on operating expenditures (called opex) such as lower fuel costs, repairs and tolling will soon fully offset the capex over the lifetime of the truck, making the TCO of electric trucks more favourable. Therefore we need a few years of national demand-side policies such as purchase premiums to help hauliers bridge the cost difference between a ZET and diesel. These financial incentives need to be designed adequately to direct subsidies where most needed and most efficient to reduce emissions.



**Notes:** Illustrative vehicle prices and maximum amount of purchase incentive in the EU. Based on the average diesel and ZET prices (depends on OEM and model).

**Figure 1: Bridging the cost gap between fossil-powered and zero emission trucks**

This briefing gives an overview of these existing national support schemes for vehicles and infrastructure and highlights best practices as well as recommendations to successfully support hauliers. Part of the research comprised interviews with six mid to large sized hauliers in Germany, Italy, Lithuania, Poland and Spain. All companies have bought at least one ZET or are in the process of doing so. Each country but Lithuania has a funding program in place, yet interviewees have limited experience with utilising the funding. Whilst also here TCO and reliable uptime of the vehicle are key purchase arguments for a new truck, shipping customers' aspiration to go climate neutral is the main driver behind transitioning to ZETs. The governmental support is encouraging support for hauliers, however, logistics providers in Austria, Germany and France struggle with the application procedures. Bureaucratic processes are complex and time-consuming as well as having short timelines to hand in required documents. Logistics providers as well as OEMs, who purchase their vehicles via subsidiaries, are not always able to secure the support. The waiting time to receive aid differs amongst countries and can pose a bigger challenge to smaller hauliers due to lower means of liquidity.

## **2. Public funding mechanisms for trucks and infrastructure**

In recent years many EU countries have developed public funding initiatives for sustainable vehicles and infrastructure, such as purchase and tax incentives. These are matched at EU-level by the EU's fund for infrastructure (CEF). The adoption of the Recovery and Resilience Facility (RRF) to boost the European economy after the COVID-19 crisis opened the door for more EU countries to financially incentivise the sustainable transport transition or for countries with existing schemes to scale those up. This chapter gives an overview of the public funding programs and an assessment in terms of effectiveness. A detailed description of the programs for zero emission trucks and infrastructure can be found in Annex I (p.17).

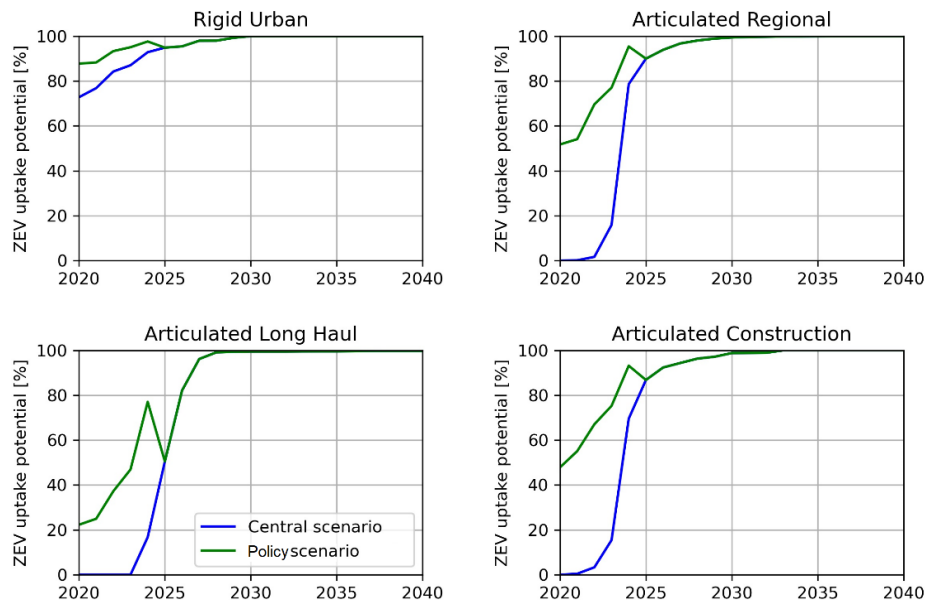
### **2.1. National purchase incentives for trucks**

On a national level, vehicle purchase incentives are the most commonly used policy tool to incentivize the uptake of zero emission trucks<sup>3</sup> after having been successfully deployed in the European car sector already.<sup>4</sup> 16 European countries currently have such incentives in place. A recent TNO study, commissioned by T&E, analysed the uptake potential of ZETs with existing ZET subsidy schemes in seven European countries (AT, DE, ES, FR, IT, PL) and the UK. The subsidies are all assumed to be phased out from 2025 onwards. Figure 2 below clearly shows that these subsidies (the policy scenario or green line) significantly accelerate the uptake potential of ZETs between 2020 and 2024 for urban, regional and long-haul trucks. From 2025 onwards the line follows the central uptake scenario (the central scenario or blue line) with a steadily high uptake potential achieved by TCO parity between ZET and diesel truck.

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<sup>3</sup> Joint Research Center (2019). The Effect of Reducing Electric Car Purchase Incentives in the European Union. [link](#)

<sup>4</sup> DIW (2022). [Link](#) and EEA (2018) [link](#) and IEA (2021) [link](#)



**Figure 2: Effect of existing purchase subsidies on the uptake potential of ZETs<sup>5</sup>**

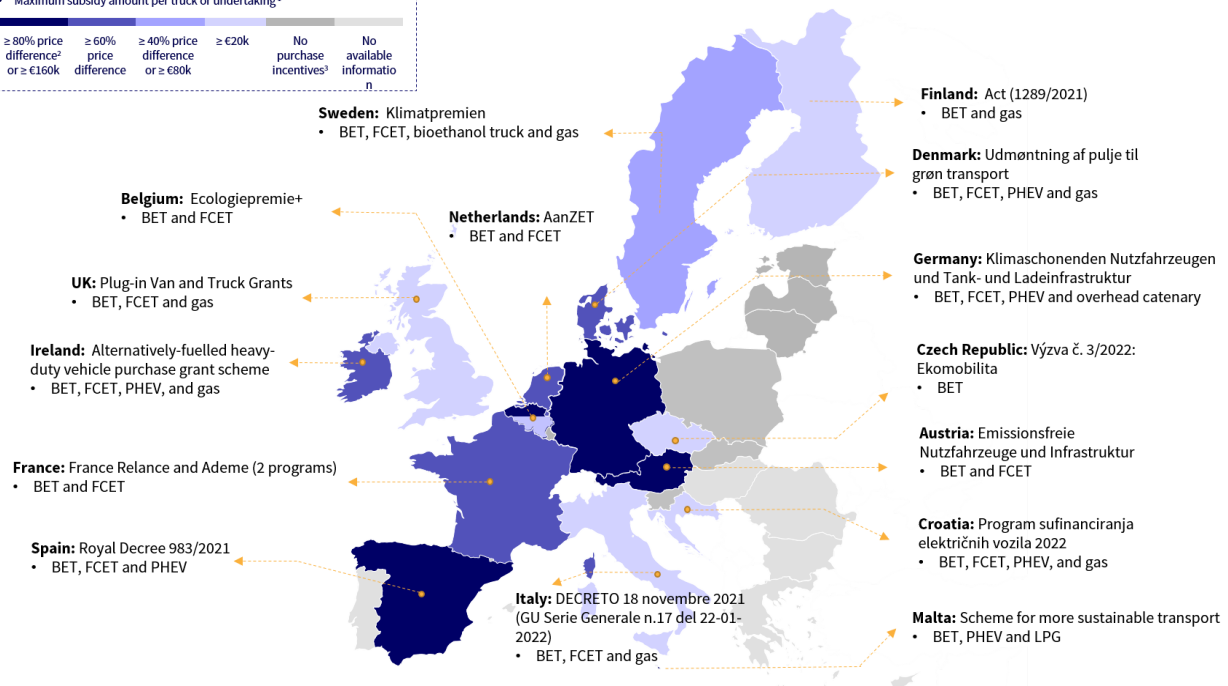
Generally, countries design their ZET subsidies as either covering a percentage point difference between the purchase price of a new ZET and a diesel truck (AT, BE, DE, DN, FR, IE, MT, NL, SE and UK scheme) or as a fixed per-vehicle sum (the CZ, ES, FI, IT and HR schemes). Austria, Germany and France have the most generous programs in place with between 65% and 80% of the price difference between a ZET and a diesel truck covered. They thereby make an appealing case for hauliers to transition and eventually benefit from the more attractive TCO of a ZET. These countries support hauliers with the maximum aid allowed per vehicle under EU state aid rules, which is 40%.<sup>6</sup> Most other European countries cover between 20% and 60% (*based on standardised percentage points for the incentive amounts of the different programs*) of the cost difference between ZETs and conventional diesel trucks (CZ, DE, FI, HR, IE, NL). The map (figure 3) below shows the different ZET programs across the EU with funded drivetrain technologies and colour-graded by covered costs in percentages.

<sup>5</sup> T&E (2022). Cheaper, stronger, further: by 2035, all new electric freight trucks will beat diesel. [link](#)

<sup>6</sup> State aid for clean trucks has to comply with internal market regulations in order not to distort competition. The revised competition policy of the EU (General Block Exemption Regulation or Council Regulation No 994/98), exceptionally allows member states to give financial assistance to companies for vehicles and infrastructure. But only under certain conditions, after the Commission's approval and capped at a maximum of 40% of the eligible costs (or €15mil./applicant).

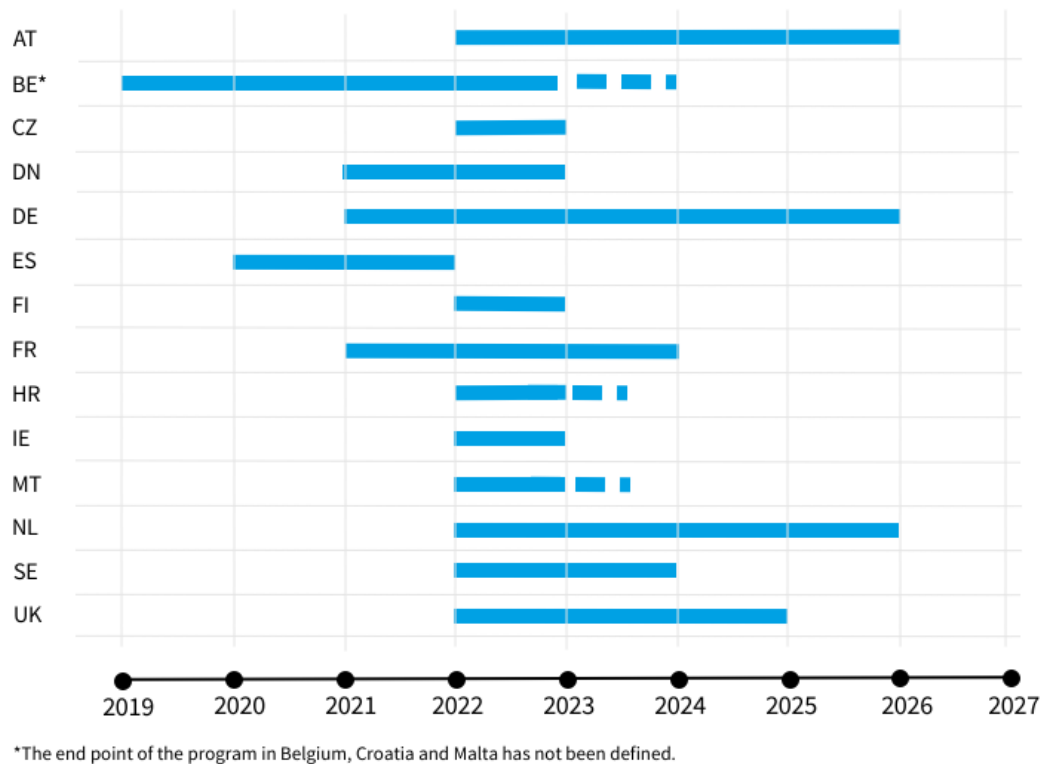
**Info legend:**

Country: Name of the funding program					
• Supported powertrains of trucks					
• Maximum subsidy amount per truck or undertaking <sup>1</sup>					
≥ 80% price difference <sup>2</sup> or ≥ €160k	≥ 60% price difference	≥ 40% price difference or ≥ €80k	≥ €20k	No purchase incentives <sup>3</sup>	No available information



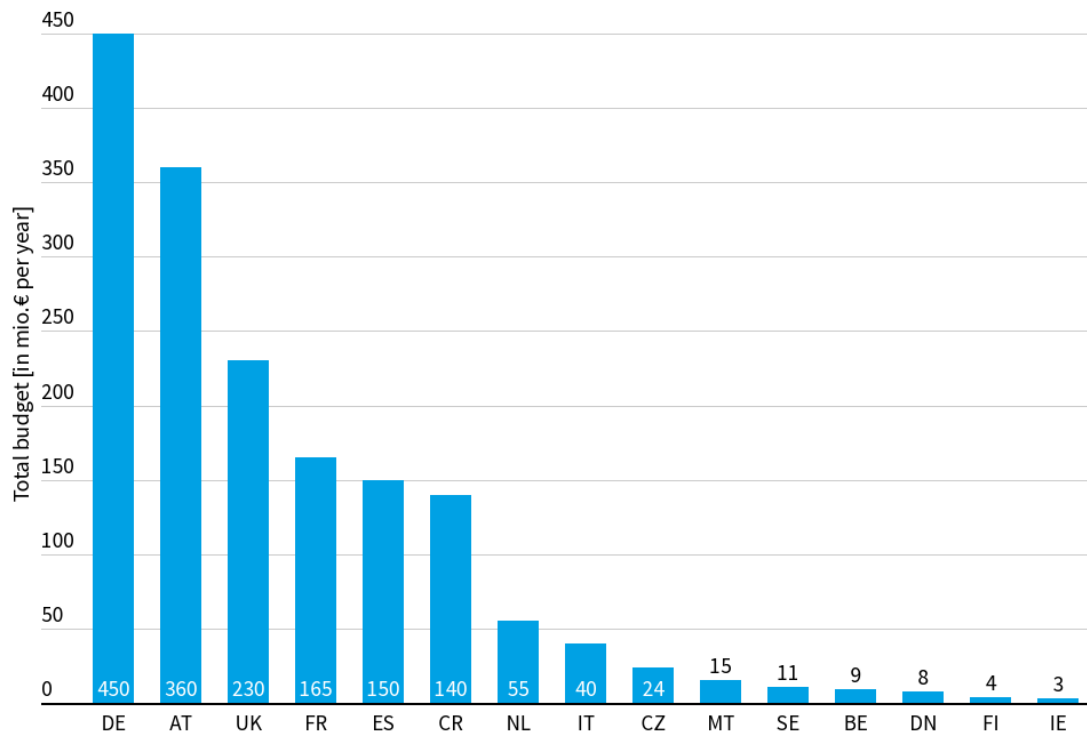
**Figure 3: Map of national ZET funding programs across the EU+UK**

Regarding the supported drivetrain technologies, all countries offer aid for battery electric and hydrogen trucks aside from Malta and the Czech Republic, who both focus solely on BETs. Germany, Ireland, Malta and Spain also include plug-in vehicles. Sweden is the only country that supports vehicles running on biofuels, while Germany is the only country that includes overhead-catenary systems in its program. Few countries such as Ireland, Finland, Italy and Sweden still invest in new fossil gas vehicles. Countries such as Spain and Denmark used to include so-called low-emission options such as gas trucks, but have moved away from that inclusion and are now encouraging only truly zero emission trucks. The timeline (figure 4) and budget (figure 5) for each program are detailed below.



**Figure 4: Timeline of the national ZE truck programs**

Figure 4 shows the diverging ambition levels regarding the allocated budget for ZET purchase initiatives of the different countries. Whilst each program has a different running period (see Figure 5) and the financial needs depend on the truck fleet size of the respective member states, many of the programs allocate only a few million euros to the road freight transition. This will result in just a few dozens supporting zero emission trucks for years to come.



**Note:**

The total budget has been standardized to EUR across the different currencies. The total budget differs in comparison due to diverging running periods of the programs.

**Figure 4: Budget of the national ZE truck programs**

While Annex I provides a detailed description of the programs in each country, below we summarise some trends that arise across the different programs, identifying what is considered best practices and suggestions for improvement to make the programs more effective in bringing zero emission trucks on the road.

**What works well:**

- Spain, Ireland, Germany, Malta and the Netherlands are differentiating their subsidy amounts depending on the applicants' company size or annual turnover. This allows these governments to ensure larger aid sums flow to smaller companies with more limited financial capacities.
- The German funding scheme takes the CO<sub>2</sub> saving potential per invested euro into account. Only applications that save more CO<sub>2</sub> than the lowest performing 50% of applicants are approved. Both investment cost and annual mileage are taken into account, meaning that trucks with high mileage are more likely to gain the subsidy. As these are also the trucks with the highest vehicle price, this differentiator steers funds towards where they are most needed.
- The programs in Malta and Croatia integrate scrappage into their funding schemes, increasing the support sum when the ZET is a one-on-one replacement of a diesel truck. This serves as an additional incentive to phase out diesel vehicles.
- Finland currently is the only country supporting the deployment of electric trailers (≥18t) with roughly 10k, enabling the deployment of fully zero emission tractor-trailer combinations.



### What needs to improve:

- Most member states offer insufficient compensation, either in terms of the per-vehicle spending or the program's overall budget. In the case of Belgium and Denmark, only about a dozen trucks can be funded with a budget of respectively €3 and €7 million. As the price gap between a diesel and an electric vehicle can be as large as €200,000, the low per-truck funding in Italy, Sweden and the UK ends up barely covering 10% of the additional investment required. With support capped at €24,000 per truck, the Italian program is the tailight of financial support for ZETs.
- In the two countries with the largest heavy duty vehicle fleets in Europe, Poland and Italy, it is unclear whether the ZET funds are already available as the respective portals and application forms are not accessible. In Poland the zero emission electromobility program was extended in 2019 and calls have been closed in 2020. Both countries currently only have their platforms for passenger vehicles running.
- There is strong and clear evidence that gas trucks are as bad for the climate as their diesel counterparts.<sup>7</sup> Ireland, Finland, Italy, Poland and Sweden should remove gas trucks from their funding programs immediately, as Denmark and Belgium already did.
- Biofuel trucks are subsidised in Sweden and Finland are receiving a push in Finland this year as both receive governmental support. So-called renewable biofuels used in combustion trucks are not a solution to decarbonise the sector. Advanced liquid or gaseous biofuels will only be available in very limited quantities. The damage to food security, biodiversity, and climate associated with food- and feed-based biofuels is already well documented.<sup>8</sup> When only truly sustainable biomass is considered and competition with other industries is taken into account, only very limited quantities of advanced biofuels can be produced in the EU or anywhere.
- A few countries such as Croatia, Germany, Ireland and Spain invest in plug-in hybrid trucks (PHEVs), thereby incentivizing a concept that has proven to be a failure. Testing results showed that PHEVs emit up to 8 times more in real world circumstances than advertised.<sup>9</sup>
- Differentiating the purchase incentive based on the price and efficiency of the different drivetrain and engine technology is not applied across all EU programs (e.g. SE, HR, IT). This creates unfair advantages for environmentally unfriendly options. In Sweden for example, all 'environmental' vehicles receive support for 20% of the purchase price regardless of the CO<sub>2</sub> emission saving potential and price of the vehicle. This while the upfront purchase price of a BET and FCET is currently higher than other 'environmental' trucks such as the much less sustainable gas and biofuel trucks.
- Long application cycles with heavy administrative processes as reported in Germany and France inhibit SMEs from making use of the funding and transitioning. For them, uncertainty of the timeline and administrative resources pose a bigger burden. In Germany for example, a ZET purchase can only be made once the grant is approved, making the purchasing of a new truck a time-consuming process.

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<sup>7</sup> T&E (2021). Gas truck as bad for the climate as diesel in on-road tests. [Link](#)

<sup>8</sup> T&E. (2022). Food not fuel: Why biofuels are a risk to food security. [Link](#)

<sup>9</sup> T&E (2020). Plug-in hybrids in new emissions scandal as tests show higher pollution than claimed. [link](#)

- There are a number of EU countries that currently do not have a funding program in place for zero-emission trucks (BG, CY, GR, LV, LT, LU, HU, PT, RO, SL, SK). Estonia has put in place aid for other electric vehicles such as cars and buses, but not for trucks.

#### **INFOBOX: Best practices from California**

In the US, the state of California has two programs in place to fund zero emission infrastructure and vehicles. With the zero emission strategy for on-road heavy duty, California facilitates a partially mandatory and partially voluntary 100% ZET sales target by 2045 the latest.<sup>10</sup> To turn this into a reality, the *Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project* (HVIP) was created to transition the heavy-duty vehicles. It promotes the adoption of clean trucks and buses by offering vouchers, making it particularly attractive and effective as it ensures immediate discounts at the point of sale. This spares enterprises to a large extent from bureaucratic and administrative obstacles and eases the funding process. This is particularly beneficial for smaller enterprises. The vouchers are available upfront for public and private fleet operators of medium and heavy-duty trucks and buses, including for owner-operators and small fleets. The total budget allocated for 2020 and 2021 is \$569.5 million (€574.8 million) for individual trucks and buses, whilst \$104 million is dedicated to transitioning truck fleets.

Funding rates can go as high as \$240,000 (~€242.000) for Heavy Good Vehicles (HGV) above 15t gross vehicle weight.<sup>11</sup> The program runs increasingly successfully and generates large orders of BETs in North America. For example, Maersk has recently ordered 126 Volvo BETs.<sup>12</sup> The model works on a first-come-first-serve basis. Through vehicle catalogues, funding tables, the application procedure and the truck sellers, the HVIP compiles accessible information on their website.<sup>13</sup>

## **2.2. EU and national purchase incentives for infrastructure**

Charging infrastructure is a crucial part of the e-mobility transition for both passenger and freight transport. While in market introduction years funding is needed to roll-out a basic public network across Europe, lessons from the car sector can be drawn. With increasing electric vehicle uptake, a wider expansion of private infrastructure will enlarge the existing public network as private charging point operators move into the heavy-duty field. Generally, member states support public, private and semi-private charging and refuelling hubs to varying degrees, either entirely publicly financed or through public-private co-financing agreements. Those include different charger types, ranging from public high power charging points with at least 750kW to public and private overnight chargers with more than 100kW.

<sup>10</sup> CARB (2022). Zero-Emission On-Road Medium-and Heavy-Duty Strategies. [link](#)

<sup>11</sup> California Air Resources Board (2021). Purchaser. [link](#)

<sup>12</sup> Volvo Trucks. (2022). Volvo Wins Largest U.S. Order For Electric Trucks Yet. [link](#)

<sup>13</sup> HVIP (2022). Clean-Air Vehicles at a Fraction of the Price. [link](#)

Country	Program	Total budget	Per charger*	Type of infrastructure	Running time	
	Austria	Emissionsfreie Nutzfahrzeuge und Infrastruktur	€62 mil.	40% of costs (max. 30.000€ for >100kW)	⚡ /H2	2020-26
	Belgium	Ecologiepremië+	€3mil./year	30% of costs (min. 50kW)	⚡ / H2	N/A
	Croatia	none	N/A	N/A	N/A	N/A
	Czech Republic	Call No. 3/2022: Ecomobility	N/A	50% of the costs (max. ~€41.000)	⚡	2022-23
	Denmark	Udmøntning af pulje til grøn transport	DKK 72 mil.	Coming soon	⚡ / H2	2021-24
	France	Advenir	€127 mil.	60% of costs (max. €960.000 for >4.000 kVA)	⚡	2021-22
	Finland	Decree under Act on Discretionary Government Transfers	€13.2 mil.	Coming soon	⚡ / H2/ 🚗⚡	2022- 25
	Germany	Klimaschonende Nutzfahrzeuge und Infrastruktur	€80 mill.	80% of costs	⚡ / H2/ ERS/ PHEV	2021-24
	Ireland	none	N/A	N/A	N/A	N/A
	Italy	Gazetta Ufficiale n.251 del 20 ottobre 2021	€90 mil.	40% of costs (max. €75.000 for >100kW)	⚡	N/A
	Malta	none	N/A	N/A	N/A	N/A
	Netherlands	none	N/A	N/A	N/A	N/A
	Poland	Funduszu Niskoemisyjnego Transportu	N/A	N/A	⚡ /H2/ 🚗⚡	2019-20
	Spain	Royal Decree 983/2021	€150 mil.	40% of costs (max. 70.000 for >350kW)	⚡	N/A
	Sweden	Klimatklivet	SEK 150 mil.	40% of costs (for >50kW)	⚡	2020-22
	United Kingdom	none	N/A	N/A	N/A	N/A
	EU	Alternative Fuel Infrastructure Facility	€1.575 bn.	(max. €60.000)	⚡ / H2/ 🚗⚡ /PHEV	2021-27

**Notes:** \*Only the highest premiums per vehicle are depicted. Sums can be lower depending on truck weight and drivetrain. The subsidy amount per vehicle depends on the country, vehicle size, company size and propulsion technology.

**Sources:** AT: ENIN (2022), BE: Vlaamse overheid (2022), CZ: State Environmental Fund of the Czech Republic (2022), DE: N.O.W. (2021), DN: Transportministeriet (2022), ES: Ministerio de transportes, movilidad y agenda urbana (2021), FI: Ministry of Justice 1289/2021 (2021), FR: Ministère de l'Économie et des Finances (2020), IT: Ministero delle infrastrutture e della mobilità sostenibili (2022), PL: Ministerstwo Klimatu i Środowiska (2021), SE: Ministry of the Environment, Ministry of Infrastructure: Government proposes faster pace for climate efforts (2022), UK: Department for Transport (2022).

**Figure 5: Detailed overview of national ZE infrastructure subsidies**

### 2.2.1. National level ZE infrastructure incentives

Out of the 16 countries with a program for vehicle subsidies, only 12 also offer subsidies for recharging (BET) and refuelling (FCET) infrastructure with adequate power output for HDVs. That means charging stations with an output of at least 80kW for overnight charging, at least 150kW for opportunity charging and 350kW for a full recharge of BETs. The most advanced programs are currently in place in France, Germany and Sweden with an offer to compensate between 60-100% of the infrastructure costs. Small cost contributions are available in Belgium, Croatia and Italy. Hydrogen refuelling stations are part of the Danish, German, Finnish and Polish schemes. Finland and Denmark are currently in the process of designing their aid programs and intend to launch them in 2022. Especially Croatia, Ireland, Malta, the Netherlands, Poland and the UK should ramp up their infrastructure plans, as they already have support schemes for vehicles in place.

Below we summarise some trends that arise across the different programs, identifying what is considered best practices and suggestions for improvement to make the programs more effective in installing charging and refuelling infrastructure on private and public grounds.

#### What works well:

- In the three European countries with the biggest HDV fleets, support programs cover more than 50% of the infrastructure costs (DE, FR and PL).
- Belgium only incentivises fully decarbonised road freight solutions. A strong recommendation is given to maximise the use of renewable energy for both charging and hydrogen refuelling infrastructure projects.
- The German and Swedish programs fund the corresponding charging infrastructure when and only if a zero emission truck is also purchased. That way immediate emission savings from the deployment of ZETs can be assured.
- Sweden finances both public (100% compensated) and private infrastructure (40% compensated), respectively at public roads and at private depots or warehouses. Especially in early years the funding of private charging is important as the first ZETs on the road are deployed mainly for urban and regional deliveries and therefore charged at hauliers depots and logistic hubs.

### What needs to improve:

- In most European electromobility programs the focus is still on passenger vehicles. That means the charging infrastructure's layout (the design of the parking spot and charger, as well as power output) is not suitable for heavy-duty vehicles.
- Finland and Sweden contribute with their scheme to an expansion of gas infrastructure, diverting scarce resources away from truly zero emission solutions and locking in fossil-driven transport for years to come.
- In Belgium and Denmark the total budget is rather low with respectively €3 and €5 million, especially in comparison to the few hundred million that Germany, France and Finland have budgeted for investments. Considering the low amount of charging points these schemes will be able to support, this is merely a drop in a bucket.
- In France and Germany, the launch of the calls were delayed or closed earlier, running out of budget quicker than expected. This causes additional unpredictability.
- As is the case for vehicle support, the subsidy platform for infrastructure is also not up and running in Poland and Italy.
- The Netherlands dedicates more than half (22 million<sup>14</sup>) of its 35.5 million euro strong budget only to hydrogen refuelling stations and trucks. Whilst this will be a useful extension once an increasing number of FCETs are on the roads, currently it is charging infrastructure that is needed for already operated battery- powered heavy-duties.
- The Swedish 'Klimatklivet' program supports the installation of public and private charging infrastructure, yet on the conditionality of preparing regular reports how the charging stations are used (with frequencies, powered vehicles and charging times) compared to the driving patterns of diesel trucks. This conditionality burdens truckmakers and operators that only produce and deploy ZETs instead of replacing diesel trucks. It should be a measure at a later stage when ZETs and diesel can be deployed in the exact same application scenarios.

#### INFOBOX: Best practices from California

California's *EnergIIZE Commercial Vehicles Project* is the first-of-its-kind project on a global level that aims to accelerate the deployment of basic charging and refuelling infrastructure for zero emission HDVs. The project is a \$50 million multi-annual package, funded by California's Energy Commission's *Clean Transportation Program* and reserved for communities most impacted by transport related air pollution. Amounts up to \$750K per charger are available with outputs of at least 150kW and preparing for 1MW charging points (by installing switchgears, electrical panel upgrades, wiring and conduit and metres).<sup>15</sup>

As under the HVIP (see infobox on p.9), the Californian *EnergIIZe* program offers effective and accessible information on programs and procedures. The documentation on infrastructure is tailored to different target audiences with specific guidance for commercial users and infrastructure such as [public charging stations](#) or [hydrogen refuelling](#). It is also clustered [per use case](#) (fleet user,

<sup>14</sup> Rijksoverheid (2022). Kabinet investeert in meer waterstof-tankstations. [link](#)

<sup>15</sup> Energiize (2022). Step 1: Choose Your Funding Lane. [link](#)

technology provider or vendor/installer) and company size ([EV Fast Track](#) for commercial users and [EV Jump Start](#) for SME users or users in low-income communities).

### 2.2.1. EU-level ZE infrastructure incentives

At EU level, the mandatory charging and refuelling targets for HDVs in the Alternative Fuels Infrastructure Regulation (AFIR) as well as the corresponding AFIF funding instrument (see below) will ensure a basic HDV charging and refuelling network across Europe, making cross country and long-haul operations feasible by 2025. Today ZETs are mostly deployed in regional distribution, where charging at their logistics hubs is the most common and time-efficient approach. Despite pushes by for example DPDHL, TLN and the RAI association to extend the basic AFIR public charging network to private charging<sup>16</sup>, targets for charging on private ground were not included in AFIR. Hence, funding for opportunity charging spots on private grounds urgently needs to be developed at European, national and regional level.

Besides AFIF, the EU-level also offers the Connecting Europe Facility (CEF), which aims to finance a Trans-European Network (TEN) in the transport, telecommunication and energy sectors. The programme was renewed under the EU's latest multiannual budget (MFF 2021-2027) with a total budget of €33.7 bn, with 77% (€25.8bn) available for transport projects. A large part of that (€18bn) will be spent in the first 3 years (2021-2023), through three annual calls for infrastructure projects in the different regions. Each call allocates around €5.5 bn to Europe's most used transport routes, the so-called Trans European (road) Network or TEN-T. The remaining money for 2021-2023 (€1.5bn) is used to set up the Alternative Fuels Infrastructure Facility (AFIF) and is available to both companies and public authorities. The aim is to deploy electric fast-charging and hydrogen refuelling stations for HDVs along the TEN-T.<sup>17</sup> The budget is divided into a general envelope (AFIFGEN) of €1.2 bn available to all EU countries and a cohesion envelope (AFIFCOEN) of €375 million available only to member states that can access the Cohesion Fund.<sup>18</sup> Part of AFIF is the launch of an updated network of recharging points at 350kW for heavy-duty vehicles on the TEN-T comprehensive network via the most recently published third and fourth call (see Annex, figure 1). The 2022 calls are open until January 2023. The previous 2021 call for the Cohesion and General envelopes funded 24 projects for a total budget of €292.5 mil. Whilst the majority of these projects were implemented in France, Germany and Italy, one initiative was executed as well in Slovakia, Belgium and Estonia. 21 of those projects were dedicated to publicly accessible charging and refuelling infrastructure for both passenger and commercial vehicles.<sup>19</sup> About one fifth of the 2021 AFIF money however was still being wasted on infrastructure for LNG, thereby diverting money away from the much needed extension of the basic coverage of recharging and refuelling stations and into fossil deadlock infrastructure.<sup>20</sup>

<sup>16</sup> Pitane (2022). RAI Association and TLN argue for a better charging network. [link](#) and DP DHL (2021). The Future Of Evs Goes Beyond Vehicles. [link](#)

<sup>17</sup> EIB (2021). Europe's alternative fuels infrastructure getting a boost from new EIB and European Commission support. [link](#)

<sup>18</sup> Those countries are Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Portugal, Romania, Slovakia and Slovenia

<sup>19</sup> CINEA (2022). Second cut-off date of the Alternative Fuels Infrastructure Facility. [link](#)

<sup>20</sup> CINEA (2021). AFIF priorities. [link](#)



### 3. Conclusions and policy recommendations

Despite making up only 2% of the fleet, trucks are responsible for over a quarter of the EU's emissions from road transport. Public authorities are ready to invest in the transition to zero emission freight by enabling logistics service providers to jump over the temporary ZET price hurdle. The range of existing public funding offers described in this briefing are testimony to that. There is also a lot happening on the regulatory side. The forthcoming review of the EU CO<sub>2</sub> standards for trucks, buses and coaches can, if well designed, deliver mass production of ZETs in the 2020s and 2030s. This piece of legislation is therefore essential to bring down the upfront purchasing cost of ZETs, while the AFIR will ensure HDVs can be recharged and refuelled across Europe. To accelerate the transition in the next few years though, enabling programs at national and EU-level need improving and upscaling.

#### General recommendations:

- **No public funding for fossil fuels:** The EU's sustainable transport funds (the AFIF and CEF), its taxonomy and some member states' vehicle purchase incentives schemes (Italy, Croatia, Sweden and Finland) encourage or create loopholes for the deployment of gas powered vehicles and infrastructure. This creates dangerous lock-ins and compromises Europe's path towards energy independence. The Commissions' own life-cycle assessment (LCA) shows that LNG trucks do not reduce GHG emissions compared to diesel.<sup>21</sup> EU and national governments should immediately phase out financial support for fossil-based vehicles, as already done by Denmark recently. The focus should lay on the most effective technologies regarding energy consumption and CO<sub>2</sub> saving potential as done in Germany.
- **All eyes on smaller companies:** Financial as well as administrative support should be directed towards small and medium-sized enterprises (SMEs). A differentiated funding design with per-vehicle sums based on the size or turnover of the organisation allows to direct aid where it is most needed. Governments should ease the bureaucratic process or provide additional information and separate application procedures for SMEs with limited administrative capacities. Simplified processes as well as communicative tools such as the comprehensive one-page factsheets by CALSTART<sup>22</sup> make the support more accessible, especially to SMEs.
- Whilst funding should be differentiated for the different truck models and drivetrains depending on the highest upfront cost, the duration of funding program should as well be suited to the vehicle price developments for each truck model. A recent TNO study showed that the vehicle prices, especially for long-haul trucks, will come down drastically by 2030.<sup>23</sup>

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<sup>21</sup> European Commission (2020). Determining the environmental impacts of conventional and alternatively fuelled vehicles through LCA. [link](#)

<sup>22</sup> Calstart (2021). EnergIIZE Commercial Vehicles. [link](#)

<sup>23</sup> TNO (2022). Techno-economic uptake potential of zeroemission trucks in Europe. [link](#)

### Recommendations for national governments:

- **Introduce, expand and ultimately phase out purchase incentives:** Many mobility subsidies are still either only focussed on passenger vehicles or too small in terms of total budget (and hence fundable fleet size). Countries with no or only limited programmes in size and supported vehicle categories need to expand these schemes.<sup>24</sup> But while support is essential to accelerate the uptake of ZETs over the next few years, purchase grants should be phased out when vehicle models start reaching cost parity with their diesel counterparts in the second half of the 2020s.
- **Budget neutral subsidies:** Subsidies for ZETs can be financed through levies on polluting trucks, such as bonus-malus taxes or emissions charges on emitting trucks.<sup>25</sup> An example are bonus-malus taxes that exempt and benefit ZETs while increasing the acquisition or registration taxes for diesel trucks.
- **With vehicles must come infrastructure:** Many of the national ZET funding programs do not include support for charging or refuelling stations. The Alternative Fuels Infrastructure Regulation and financial support coming from the Alternative Fuel Infrastructure Facility will ensure a basic public charging infrastructure is deployed across Europe. But countries should back the expansion of (semi-)public infrastructure, in particular depot charging. Public-private partnerships such as the megawatt charging project HoLa in Germany guarantee a shared shouldering of the costs for all involved parties.
- **Embrace new financing models:** As truck manufacturers are diversifying their financing portfolio to include innovative rental and as-a-service offers for vehicles and infrastructure, national support programs should accommodate in their application processes for those. Germany, for example, allows for the leasing of vehicles next to the classic purchase as part of their purchase incentive. No member state so far allows hauliers to apply on the basis of a pay-per-use model. This would either require OEMs to apply for the subsidy to unburden the haulier (and then offer these trucks at a reduced rate), or for hauliers to receive government support on a monthly or annual basis as they buy their way into the ZET over time. Governments can also bring together OEMs, hauliers and third party financiers, in order to stimulate them to develop more of these innovative financing models, especially for SMEs.
- **Rolling calls with predictable processing time:** Having regularly and continuously running calls can assist logistics providers with predictability and planning. The current one-off calls with unpredictable launch and running times make it difficult to stay informed and secure support when the ZET purchase decision is made on the hauliers' side. The information on the timing details and procedure has to be easily accessible. The Californian programs show that accessible information and closing the cost gap at the point of purchase make for a smooth application process.

### Recommendations for the EU-level:

- **Ambitious CO<sub>2</sub> standards help to deliver TCO cost parity:** Financial investments that further the expansion of zero emission fleets will be a catalyst for the transition. Yet, as seen in the car

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<sup>24</sup> ICCT (2021). Total cost of ownership for tractor trailers in the United Kingdom: Battery electric vs. diesel. [link](#)

<sup>25</sup> ICCT (2022). Electrifying Last-Mile Delivery. [link](#)



sector, ambitious CO<sub>2</sub> standards are a key driver for the mass production of electric cars. Similarly for trucks, strong CO<sub>2</sub> standards will thereby bring down upfront purchasing prices and help deliver TCO cost parity in the near future, at which point national purchase subsidies can be phased out.

*Disclaimer:*

*This document is based on desk research by T&E as well as additional research by the consultancy P3. Member state representatives, hauliers and solutions providers were consulted in the process. The briefing maps existing financial support by the different actors, based on which trends and policy recommendations were identified. However, not for all stakeholders and member states initiatives could be found or answers did not reach us in time for the publication. In that case, please reach out to Nadine Mingers ([nadine.mingers@transportenvironment.org](mailto:nadine.mingers@transportenvironment.org)) for comments and further information.*

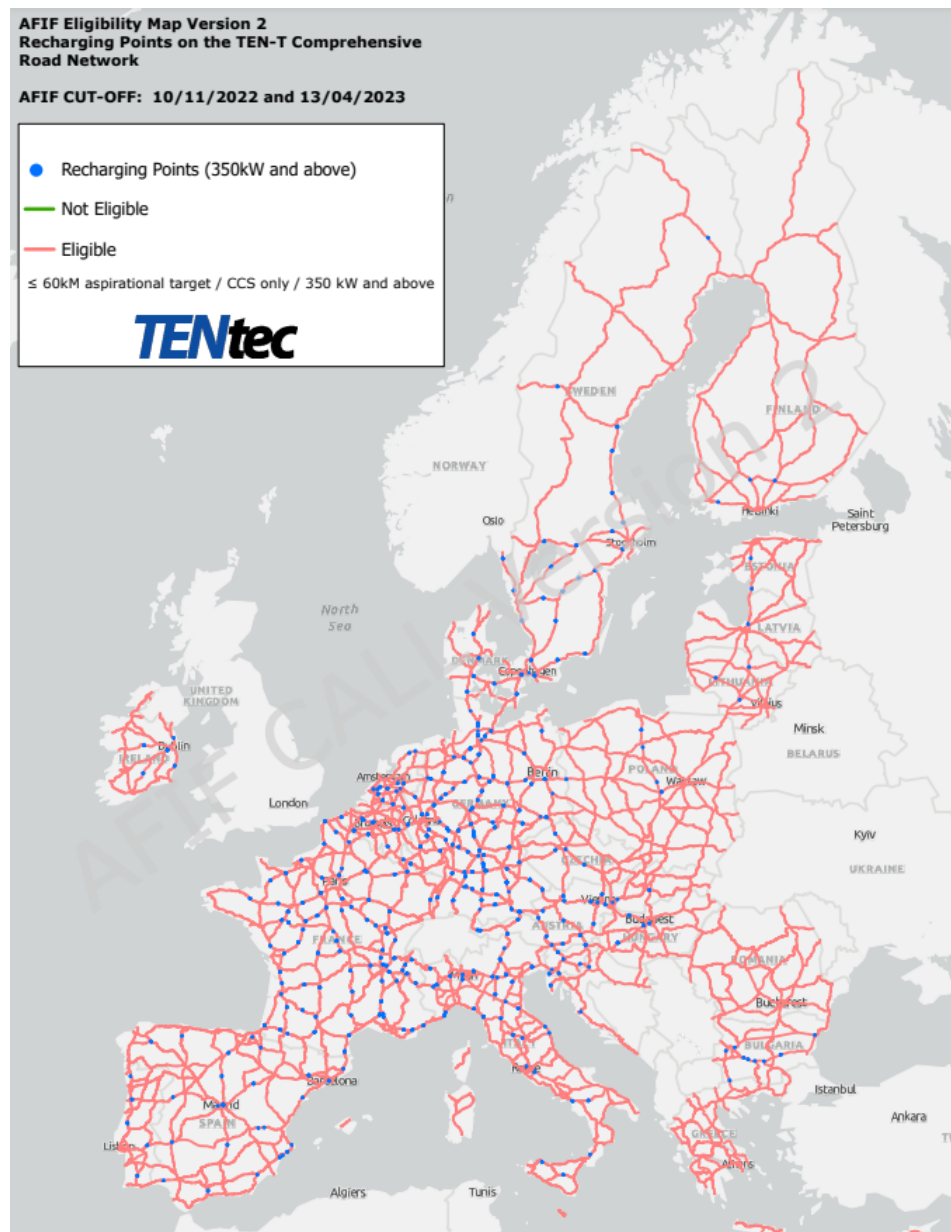
## **Further information**

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# Annex I - Detailed overview of EU and national purchase support for zero emission trucks and infrastructure

## 1. European Union

All AFIF calls as part of the Connecting Europe Facility (CEF) are listed on the [CIENA platform](#). The AFIF has three cutoff dates: November 10, 2022; April 13, 2023 and September 19, 2023. For hydrogen refuelling infrastructure there is a call under the [cohesion envelope](#) and under the [general envelope](#).



**Figure 1: AFIF eligibility map of call 3 and 4: recharging points for HDVs with a power output of  $\geq 350\text{kW}$** <sup>26</sup>

<sup>26</sup> European Commission (2021). TENtec Interactive Map Viewer -Layer filter 'AFIF CALL 1+2'. [Link](#)

## 2. Member States

Country	Program	Per vehicle*	Type of drivetrain	Total budget	Running time
	Austria Emissionsfreie Nutzfahrzeuge und Infrastruktur	max. 80% of difference	⚡ / H2	€360 million	2022-26
	Belgium (Flanders) Ecologiepremier+	max. 80% of difference	⚡ / H2	€3 mil./year	2022- tbd
	Croatia Public Call for co-financing of energy-efficient vehicles	HRK 400,000 (€50,000)	⚡ / H2 / PHEV/ 	HRK 108.3 million	N/A
	Czech Republic Call No. 3/2022: Ecomobility	1 million CZK (~€40,000)	⚡	600 million CZK	2022-23
	Denmark Udmøntning af pulje til grøn transport	max. 60% of difference	⚡ / H2	DKK 50 mil.	2021-22
	France France Relance and Ademe	max. 65% of difference (~€100.000)	⚡ / H2	€165 mil.	2021-24
	Finland Regulation 1289/2021	(€50,000)	⚡ / 	€4 million	2022
	Germany Klimaschonenden Nutzfahrzeugen & Tank- & Ladeinfrastruktur	max. 80% of difference (€550.000)	⚡ / H2 /  / PHET/O HC	€1.3 billion	2021-26
	Ireland Alternatively-Fuelled Heavy Duty Vehicle Purchase Grant	max. 60% price difference	⚡ / H2 / PHEV/ 	€2.9 million	2022-23
	Italy Ministerial decree (GU Serie Generale n.17 del 22-01-2022)	(€24.000)	⚡ / H2 / 	€30 mil.	2021-24
	Malta Grant scheme for the purchase of electric vehicles	40% of purchase price (max. €250,000)	⚡	€15 million	N/A
	Netherlands AanZET	max. 60% of difference (€132.000)	⚡ / H2	€55 mil.	2022-26
	Spain Royal Decree 983/2021	(max. €190.000)	⚡ / H2 / PHEV	€150 million	2020-22
	Sweden Klimatpremien	20% of purchase price	⚡ / H2 /  / 	SEK 120 million	2022-24
	Poland Funduszu Niskoemisyjnego Transportu	N/A	⚡ / H2 / 	N/A	2019-20
	United Kingdom Plug-in Van and Truck Grants	max. 20% of vehicle (~€28.000)	⚡ / H2 / 	£1.423 bil.	2022-25

**Figure 2: Detailed overview of national ZE infrastructure subsidies**

## Austria

In its 'Mobility Masterplan 2030' the Austrian government states the intention to phase out diesel HDVs by 2030 for trucks with less than 18t and by 2035 for all other HDVs.<sup>27</sup> In its Recovery and Resilience plan, the government sets aside roughly €848,6 million for mobility initiatives, one of them being the installation of charging and refuelling infrastructure. The funding is based on the [AT guideline on e-mobility for commercial actors](#) from 2021 and compensates various mobility solutions with an equivalent of €600/tCO<sub>2</sub> saved.

The country's funding for heavy-duties is called the '[Emission-free Commercial Vehicles and Infrastructure](#)' (ENIN). It is hosted by the Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK) and managed by the [Austrian Research Promotion Agency \(FFG\)](#). The first call targets buses (N1), compensating 80% of the additional vehicle costs. Tendering started in the summer of 2022 with an initial €35 million. Each following year has a fixed budget of €50 million.<sup>28</sup> A large chunk of that originates from Austria's recovery fund. A second call designated to trucks (N2 and N3) started August 2022. The purchase incentive is not a fixed lump-sum support but depends on a ranking based on the type of vehicle and infrastructure as well as its CO<sub>2</sub> emission saving potential.

Austria's guideline document for enterprises transitioning to e-mobility details the subsidies per charger depending on their power output. For the necessary power output for trucks (above 80kW), a contribution of €30,000 is offered. The support for private charging points with the same output is a bit lower (€20,000). The calls are published under the ENIN fund for infrastructure with a total of €35-50 million. The pot is open for several years and contributes 40% to the net acquisition costs. One of the conditions to install infrastructure is however the purchasing of an electric truck.

## Belgium

The Flemish regional government has published and updated its truck scheme '[Ecology+ Premium](#)' recently. A recent reform removed gas trucks from the support program, doubling support for electric trucks instead. For BETs and FCETs, respectively 80% and 45% of the cost difference with a conventional truck is compensated. Support is capped with regards to company size (50% of the additional costs for small and medium-sized companies (<250 workers) and 40% for large enterprises) and total vehicle costs (40% for BETs, 22.5% for FCETs and €160,000 in total). Each company can have a maximum of 2 trucks funded. The total budget is relatively small with €3 million, even if it covers only a part of Belgium. The premium also enables the construction of recharging stations. Up to 30% of the costs can be compensated, as long as the power output is at least 50 kW and renewable energy is used. For a hydrogen refilling station 27% of its costs are reimbursed, with a cap of €2 million per fuelling station.

<sup>27</sup> BMK (2021). Mobilitätsmasterplan 2030 – Neuausrichtung des Mobilitätssektors. [link](#)

<sup>28</sup> EINN (2022). Emissionsfreie Nutzfahrzeuge und Infrastruktur. [link](#)

The Wallonian government has a [fund](#) in place from 2021 onwards. €5k is given per vehicle, with a maximum amount of €15K per company. The goal is to reduce energy consumption, noise and emissions and the scheme includes both vehicles and equipment.

### Croatia

In Croatia the '[Fund for Environmental Protection and Energy Efficiency](#)' published a call for the co-financing of energy-efficient vehicles, providing a total of HRK 108.3 million (approx. €14.4 million). The package contains HRK 103.3 million (approx. €13.7 million) for individuals and legal entities and HRK 5 million (approx. €0.7 million) for the public sector. In the vehicle categories N2 and N3, the following drivetrains are supported: BEVs, FCEVs and PHEVs with a maximum of HRK 400,000 per vehicle (approx. €53,000). Gas trucks powered by compressed (CNGVs) or liquified fossil gas (LNGVs) are also financed under the Croatian scheme.

### Czech Republic

The Czech subsidy program 'Výzva č. 3/2022: Ekomobilita' ([Call No. 3/2022: Ecomobility](#)) under the Environment Ministry has a budget of 600 million CZK (approx. €25 million). It includes battery electric trucks (>12t), but support for hydrogen-powered vehicles is restricted to passenger cars (M1). The [purchase incentive](#) is offered in the form of a fixed subsidy per type of vehicle when acquired, rented or leased. If the purchase consists of a replacement of a fossil fuel vehicle, the fixed subsidy is increased by 20%. The beneficiary has to clearly prove that the fossil fueled vehicle has been removed from the vehicle register and disposed of.

In addition, the subsidy is targeted to the acquisition of private charging stations, but only in combination with the purchase of a vehicle. This support is capped at 50% of the acquisition costs.

### Denmark

Denmark's goal is to reduce its overall GHG emissions by 70% in 2030 with a zero emission share (defined as electric and hydrogen-powered trucks) of 50% of trucks being sold in the same year, estimated by the Danish energy provider Danks Energi. To this end, the '[Implementation pool for green transport](#)' program, administered by the Danish Energy Agency (see [portal](#)), was set up in 2021 with a budget of DKK 275 million (approx. €37 million). The program also includes the greening of domestic ferries and expansion of charging stations for electric cars, in parallel to the roll-out of 'green trucks' and charging infrastructure for commercial transport. The pot for trucks allocates DKK 50 million (approx. €7 million) to applicants in 2022, including hydrogen and battery-electric trucks. The per vehicle funding compensates 60% of the price difference with a diesel vehicle for small enterprises and 40% for large organisations. The first call was finalised in July and a new 'pot' was opened in August 2022. Applications are evaluated against three criteria: the expected CO<sub>2</sub> savings over the lifetime of the truck, the lowest possible amount of support per vehicle and the extent of vehicle usage. Gas trucks and infrastructure were until recently included in the Danish definition of green trucks, but fell out in the context of reducing fossil dependence on non-EU countries.

The program also channels DKK 72 million into ‘green’ fuel infrastructure for commercial transport. Of the DKK 72 million, about DKK 3 million (approximately €4 million) is set aside for a study into the possibilities for overhead catenary lines on the Øresund-Femern belt. 2022 will see a potential extension of DKK 150 million for public and private infrastructure.

## Finland

The Finish [law](#) on ‘Temporary support for the purchase of a vehicle operating with an alternative drive and the conversion of a vehicle to operate with an alternative drive’ was approved in 2021 and its scope was extended from only cars to also include trucks. Purchase support is available for electric trucks, trailers and gas-powered trucks in 2022-2023 and is managed by Traficom. Applications were due by spring 2022. Conversion support can be granted to retrofit vehicles. The subsidy amounts are differentiated per weight and a maximum of €50,000 can be received for a vehicle  $\geq 26t$ . The application period for the additional retrofitting (conversion) program is from June 2022 till December, 2023. The execution period to retrofit diesel trucks to operate with alternative drives (electric or gas-powered) runs until June 2025.

In March this year, the government issued a [decree](#) on infrastructure support for the use of electricity, biogas, and renewable hydrogen in transport between 2022 and 2025. The grant will be allocated based on competitive tendering.

Overview per truck:

Maximum permissible mass of the vehicle in road traffic	Purchase subsidy amount in €
$\geq 3.5 t$	6,000
$\geq 6.0 t$	12,000
$\geq 16 t$	18,000
$\geq 26 t$	25,000
$\geq 18 t$ and the combined mass is at least 40 t, or $\geq 38 t$	40,000
$\geq 26 t$ and the combined mass is at least 60 t	50,000
For an electric trailer ( $\geq 18t$ ) and a net battery capacity of at least 20 kWh as well as the ability to produce at least 50 kW for the axle of the trailer continuously for at least for 2 minutes.	10,000

Source: [Decree 1289/2021](#)

## France

To enable rapid usage of zero emission vehicles in the transport sector France has put two subsidy schemes in place that can help hauliers. On the one hand, there is the ‘Ecology bonus’ for trucks



(‘[bonus écologique](#)’, based on the [Code de l’énergie](#)) within the country’s €100 million strong ‘[France Relance](#)’ scheme running until 2022. On the other hand there is the ‘[Ademe](#)’ program with the first call recently closed. It has a budget of €65 million and will run until 2024.

The ecology bonus consists of a fixed amount per truck and is handled by Agence de services et de paiement (ASP). The bonus compensates 40% of the purchase price of a battery electric or hydrogen-powered vehicle, with a maximum of €50,000 for a truck and €30,000 for a bus. The support can be combined with the depreciation scheme for ‘heavy vehicles using clean energy’, a super depreciation scheme resulting in a cost reduction of 7.5% of the purchase price, cumulatively capped at €100,000. The depreciation scheme was recently extended until the end of 2024 as well.<sup>29</sup> As a result, the combination of the grants and the additional depreciation scheme can sum up to €100,000 per electric truck. The Ademe calls, as approved by the Ministerial Council for Development and Innovation in Transport, are eligible for individual companies as well as consortiums. Per enterprise, a limit of €15 million is introduced. Purchase incentives of €100,000 per truck under 26t and €150,000 per truck above 26t are planned.

With regards to infrastructure, France funds private chargers via the ‘[Advenir](#)’ program with €320 million. Since 2016 this has led to the construction of 45,000 private and public charging stations to the existing program for 100,000 charging stations for passenger vehicles and the program has been renewed until the end of 2023. For HDV charging the aim is to develop 50 projects, leading to an initial total of 1,000 new charging points. 50% of their costs, with a max. 960k for a charging hub with 48 charging points and a minimum connection power of 8,000 kVA (~8MW), will be covered.

Overview of the support per charger (as part of Advenir):

- ≤ 500 kVA: 100,000 € HT (with at least 4 DC fast charging points)
- ≤ 1,000 kVA: €160,000 excluding tax (with at least 8 DC rapid charging points)
- ≤ 2,000 kVA: €240,000 excluding tax (with at least 12 DC rapid charging points)
- ≤ 4,000 kVA: €480,000 excluding tax (with at least 14 DC fast charging points)
- ≤ 8,000 kVA: €960,000 excluding tax (with at least 48 DC fast charging points)

## Germany

To fund the zero emission transition of Germany’s vehicle fleet, the transport ministry has implemented two funding programs. First, a fund for ‘electromobility concepts’ was handed out to public and private research institutes, designing holistic e-mobility concepts and feasibility studies for e.g. overhead catenary systems on German highways. It focused on the transition to electromobility with regards to vehicles and charging, aspects of energy efficiency and intermodality. Next, the package for ‘[Climate-friendly commercial vehicles and infrastructure](#)’ (KsNI) entails incentives for heavy duty vehicles, their infrastructure and funding for feasibility studies. In this case the studies are geared to analyse the acquisition and operability of zero emission HDVs. The pot addresses different focus points over the timespan of the program. Supporting the electrification of

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<sup>29</sup> France Assemblée Nationale (2022). Amendment no. II-CF1670 of the Finance Bill for 2021. [link](#)

urban and regional distribution is the starting point, followed by battery trucks for long distances. Last, the funding for hydrogen and overhead-catenary trucks concentrates on testing and small scale production up until 2026. Currently three calls are published, each one running for a 12 month period. Worked out by the transport ministry (BMDV), the first call - with part [one](#) and [two](#)- focuses on trucks (N1, N2 and N3), the [second](#) call on bus feasibility studies whilst the [special](#) call aims to enable the roll-out of zero emission vocational vehicles. The total budget is €1,3 billion. Each call allows the purchase of trucks and buses with electric drive, plug-in hybrid, fuel-cell electric and overhead catenary systems (OHC). The calls compensate up to 80% of the price difference between a zero emission HDV and its Euro VI diesel equivalent. The fund further differentiates the per vehicle spending between drivetrain technologies.

The coalition agreement of the current German government maps out an ambitious path for electrifying vehicle fleets by 2030, aiming to build [1 million public charging stations](#) across the country for private and commercial vehicles. It also released its proposal for a second '[Masterplan II](#)' for infrastructure this summer. The directive 'Publicly accessible charging infrastructure for electric vehicles in Germany' was extended to the end of 2025 with the government's target of stationing 50,000 charging points with at least [20,000 of those being fast chargers for cars and trucks](#). For public and private actors, the fund for commercial fleets 'KsNI' refunds up to 80% of the costs of a charger and an additional maximum of €100.000 per charging location to connect charging hubs to the medium voltage grid. A [budget of 80 million](#) is dedicated to infrastructure installation for medium - and heavy- duty vehicles. Additionally, the 'Masterplan for infrastructure II' will be published later this year and promises a plan for a comprehensive roll out of a truck charging network across Germany.

Overview of the support per truck:

EG-Fahrzeug-klasse und -zGG	Kappungsgrenzen je Antriebstechnologie für Neufahrzeuge				Kappungsgrenzen je Antriebs-technologie für umgerüstete Diesel-Fahrzeuge (Umrüstung)	
	Batterie*	Brennstoff-zelle**	Oberleitungs-Verbrenner-Hybrid***	Plug-In-Hybrid	Batterie (Umrüstung)	Brennstoffzelle (Umrüstung)
<b>N1 ≤ 3,5 t</b>	25.000 Euro	90.000 Euro	-	-	-	-
<b>N2 &gt; 3,5 t bis 12 t</b>						
<b>bis 7,5t</b>	100.000 Euro	200.000 Euro	-	-	90.000 Euro	190.000 Euro
<b>bis 12t</b>	200.000 Euro	300.000 Euro	-	-	190.000 Euro	290.000 Euro
<b>N3 &gt; 12 t</b>						
<b>&lt; 20 t</b>	350.000 Euro	450.000 Euro	120.000 Euro	100.000 Euro	330.000 Euro	430.000 Euro
<b>20 bis 30 t</b>	400.000 Euro	500.000 Euro	170.000 Euro	150.000 Euro	380.000 Euro	480.000 Euro
<b>&gt; 30 t</b>	450.000 Euro	550.000 Euro	220.000 Euro	200.000 Euro	420.000 Euro	520.000 Euro

\*gilt für reine Batterieelektrofahrzeuge und Oberleitungs-Batterieelektrofahrzeuge (OL-Batterie) gemäß § 2 Nummer 2 EMOG

\*\*gilt für reine Brennstoffzellenfahrzeuge und Oberleitungs-Brennstoffzellenfahrzeuge (OL-Brennstoffzelle) gemäß § 2 Nummer 4 EMOG

\*\*\* gilt nur für Oberleitungs-Verbrenner-Hybridfahrzeuge (OL-Verbrenner) gemäß § 2 Nummer 3 EMOG,

Hybridisierung mit Batterie beziehungsweise Brennstoffzelle gilt als reines Batterieelektro- beziehungsweise Brennstoffzellenfahrzeug

Source: [KsNI Richtlinie](#)



## Italy

The Italian investment aid flows into zero emission trucks via the Ministerial decree '[Decree dell'auto trasporto](#)' by the Ministry for Infrastructure and Transport. It is a purchase incentive with about €24,000 per electric truck above 7t and €14,000 below 7t, thereby making it one of the smallest subsidy programmes in the EU.

The Italian Ministry for Sustainable Infrastructure and Mobility (MSIM) has launched a €700 million package together with the Ministry for Ecological Transition (derived from their RRF) to build a total of [7,500 public charging points and 13,700 charging points](#) in urban centres between 2021 and 2026. It is still to be defined what types of chargers will be installed and where. In addition, the Ministry of Ecological Transition planned €90 million in their [Ministerial Decree 104/2020](#) to compensate charging infrastructure costs by up to 40%, with a maximum of €75,000 for power outputs above 100kW.

## Ireland

The Department of Transport of Ireland has appointed Transport Infrastructure Ireland (TII) to administer the '[Alternatively-Fuelled Heavy Duty Vehicle Purchase Grant Scheme](#)' (AFHDVs). The total allocation is approx. €2.9 million. In this context, the scheme comprises different HDVs such as vans, trucks, buses and coaches with a gross vehicle weight of more than 3.5 tonnes. The supported fuel-types are zero emission vehicles as well as gas and PHEV vehicles. The exact grant amount is calculated as the difference in price between an alternatively fueled HDV and its diesel equivalent. The maximum possible funding per vehicle depends on the size of the applicant's organisation, with a max. support per beneficiary of €500,000.

## Malta

The Ministry for Transport and Infrastructure in conjunction with Transport Malta has launched the '[Schemes for more sustainable transport](#)' for the purchase of electric vehicles for passenger, light and heavy duty categories (L, M and N). This purchase incentive is partly funded by the national Recovery and Resilience Fund (RFF) and has a total of €15 mil. Per truck a maximum of €250K can be paid out depending on the enterprise's size, equaling 40% of the costs. The grant is open to persons residing in Malta, local governments or not-for-profit organisations which do not carry out any economic activity.

Overview of the support per vehicle:

	<b>Category of new electric vehicle</b>	<b>No. of vehicles</b>	<b><sup>1</sup> Small enterprise</b>	<b><sup>2</sup> Medium enterprise</b>	<b><sup>3</sup> Large enterprise</b>
1	M1(Car) N1(Van)	Up to 10	€11,000 per vehicle.		
2		More than 10	65% of investment costs, capped at €40,000.	55% of investment costs, capped at €40,000.	45% of investment costs, capped at €40,000.
3	M2 (Minibus) N2 (Small Truck)	N/A	65% of investment costs, capped at €40,000.	55% of investment costs, capped at €40,000.	45% of investment costs, capped at €40,000.
4	M3 (Coach) N3 (Truck)	N/A	65% of investment costs, capped at €250,000.	55% of investment costs, capped at €250,000.	45% of investment costs, capped at €250,000.

## Netherlands

The Netherlands has committed to a 30% share of new trucks and buses to be zero emission by 2030 and 100% by 2040. Additionally, to improve air quality within urban hubs, the country plans to implement low and zero emission zones ([‘milieuzones’](#)) for freight and passenger transport in 14 cities by 2025. On a national level, the program [‘AanZET’](#) (*Aanschaf Emissieloze Vrachtwagens*) was launched this summer and has a budget of [€25 million in 2022 and €30 million in 2023](#) to further the purchasing of ZETs. It was recently extended with the aim to register an additional 450 ZETs by the end of 2022. This year an additional €22.2 million is available for the purchase of construction trucks running on electricity or hydrogen or retrofitted from a former diesel engine. The AanZET is currently in consultation mode and will directly fund trailers and tractor-trailer combinations, with differentiated support based on the applicant’s company size. Whilst subsidies are capped at 40% of the vehicle costs on average, an extra boost is given to small companies (<10 employees) by increasing the cap to 60% for them. Companies can apply for subsidies from May 2022 onwards until 2027.

The Netherlands currently installed a total of [96,473 charging points](#) for cars and vans across both public and semi-public areas. 3,145 of those are fast charging points. However, the government currently has no funding program in place yet for HDV chargers and is exploring whether HDV charging infrastructure should receive financial assistance.

Overview of the support per truck:

	Maximale steun op grond van EU-staatssteunkader					
	40% (grote onderneming)		50% (middelgrote onderneming)		60% (kleine onderneming + non-profitinstelling)	
Voertuig-categorie	Subsidie-percentage	Maximaal subsidie-bedrag	Subsidie-percentage	Maximaal subsidie-bedrag	Subsidie-percentage	Maximaal subsidie-bedrag
N2	12,5 %	€ 17.800	19,0 %	€ 26.800	25,0 %	€ 35.700
N3 Bakwagen	15,0 %	€ 43.600	21,5 %	€ 63.700	28,5 %	€ 84.000
N3 Trekker	20,0 %	€ 72.700	28,5 %	€ 102.300	37,0 %	€ 131.900

Source: [AanZET](#)

## Poland

Poland has over 1 million registered trucks, making it home to the largest fleet of trucks in Europe. The country's National Fund for Environmental Protection and Water Management has been subsidising zero emission vehicles ( $\leq 3.5t$ ) since July with a program called '[My electric](#)' ('[Mój elektryk](#)'). This program is currently limited to cars and vans, but will be expanded to trucks in the future. The timeline for this extension has not yet been clarified. A draft regulation for a so-called low emission transport fund ([Funduszu Niskoemisyjnego Transportu](#) or FNT) was published December 2019, but never operationalized. After the closure of FNT in autumn 2020, the Regulation was officially recognized as obsolete. It intended to compensate 30% of the price difference between an electric truck and its diesel counterpart, with a maximum funding per vehicle of €45,000. The accumulated funds were transferred to the National Fund for Environmental Protection and Water Management. It is assumed that the vast majority of the funds will be allocated to clean transport. Since then, the National Fund has established a number of supporting schemes for purchasing and leasing zero-emission vehicles, but not yet for HDVs.

The €173 million (PLN 800 mil) scheme '[Electromobility Charging infrastructure](#)' promotes alternative fuels, covering refuelling and recharging infrastructure, and aims to develop a comprehensive network of infrastructure along both local and trans-European (TEN-T) roads. The money comes from emission fees established in 2018 (formerly known as Fundusz Niskoemisyjnego Transportu, now managed by National Fund for Environmental Protection and Water Management)) and consists of two parts. €151 million was allocated to investments in recharging stations for electric vehicles, with a focus on fast charging and infrastructure outside of cities. The remaining €22 million will be spent on the construction of publicly accessible hydrogen refuelling stations, as part of a pilot project. Up to 50% of the costs of new charging infrastructure can be covered.

### Overview of the support per truck:

		PALIWO ALTERNATYWNE			
		EV	CNG / LNG	WODÓR	
KATEGORIA POJAZDU	M1	Przewóz osób < 8 miejsc DMC<3,5 t <i>Samochody osobowe</i>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>36 tys. zł</b> na jeden pojazd maksymalna cena nabycia: <b>125 000 zł</b>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>20 tys. zł</b> na jeden pojazd maksymalna cena nabycia: <b>125 000 zł</b>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>100 tys. zł</b> na jeden pojazd
	M2	Przewóz osób > 8 miejsc 3,5 < DMC < 5 t <i>Autobus: miejski, międzymiastowy, turystyczny, szkolny</i>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>70 tys. zł</b> na jeden pojazd	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>30 tys. zł</b> na jeden pojazd	
	N1	Przewóz ładunków DMC < 3,5 t <i>Samochody ciężarowe: skrzynia, furgon, wywrotka, cysterna</i> <i>Ciągnik samochodowy: siodłowy, balastowy</i>			
	N2	Przewóz ładunków 3,5 < DMC < 12 t <i>Samochody ciężarowe: skrzynia, furgon, wywrotka, cysterna</i> <i>Ciągnik samochodowy: siodłowy, balastowy</i>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>150 tys. zł</b> na jeden pojazd	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>35 tys. zł</b> na jeden pojazd	
	N3	Przewóz ładunków DMC > 12 t <i>Samochody ciężarowe: skrzynia, furgon, wywrotka, cysterna, specjalny: śmieciarka</i> <i>Ciągnik samochodowy: siodłowy, balastowy</i>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>200 tys. zł</b> na jeden pojazd	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>100 tys. zł</b> na jeden pojazd	
	L	pojazdy dwu lub trójkołowe, niektóre pojazdy czterokołowe <i>motorowery, motocykle</i>	wsparcie do 30% kosztów kwalifikowanych, nie więcej niż <b>5 tys. zł</b> na jeden pojazd		
	M3	Przewóz osób > 8 miejsc DMC > 5 t <i>Autobus: miejski, międzymiastowy, turystyczny, szkolny</i>	wsparcie do 55% kosztów kwalifikowanych, nie więcej niż <b>1 045 tys. zł</b> na jeden pojazd	wsparcie do 15% kosztów kwalifikowanych, nie więcej niż <b>150 tys. zł</b> na jeden pojazd	wsparcie do 55% kosztów kwalifikowanych, nie więcej niż <b>2 000 tys. zł</b> na jeden pojazd
	-	Trolejbus	wsparcie do 45% kosztów kwalifikowanych, nie więcej niż <b>720 tys. zł</b> na jeden pojazd		

Source: [Funduszu Niskoemisyjnego Transportu](#)

### Spain

97% of Spanish freight transport is handled on the roads, making it one of the countries with the highest volumes of road freight and highest daily mileage in the EU. The Ministry for Transport, Mobility and Urban Agenda (MITMA) decided to exclusively subsidise ZETs in their [Royal Decree 983/2021](#) on aid for the transformation of passenger and goods transport fleets. The exact amount of aid depends on the applicants' company size, with up to €130,000 available per truck for large companies and €160,000-190,000 for SMEs. Gas trucks have been excluded from the scheme. The

program is in the approval phase for state aid by the European Commission and will replace the existing national MOVES II program, which up to the end of last year subsidised zero emission trucks and buses with up to €15,000, as well as the respective infrastructure.

The [MOVES III package](#), set up by the Spanish MITMA, will provide support for infrastructure with €125 million available until 2023. Up to 40% of the costs are eligible for large enterprises, 50% for medium-sized and 60% for small companies or self-employed workers. With regards to the power output, the total amount is capped at €10k for 50-100kW, €25k for 100-150 kW, €40k for 150-350 kW and €70k for chargers above 350kW.

*Overview of the support per vehicle:*

Categoría y clase de vehículo	Tipo de beneficiario	Adquisición de vehículos Importe unitario de la subvención (€) por tecnología				
		Híbrido Simple (HEV)	Híbrido Enchufable (PHEV) o REEV	Gas: GNC, GNL	Eléctrico (BEV)	Hidrógeno (FCV, FCHV)
M. Clase A.	Autónomo y Pequeña empresa.	25.000 <sup>1</sup>	30.000	25.000 <sup>1</sup>	65.000	65.000
	Mediana empresa.	20.000 <sup>1</sup>	25.000	20.000 <sup>1</sup>	55.000	55.000
	Gran empresa.	15.000 <sup>1</sup>	20.000	15.000 <sup>1</sup>	45.000	45.000
M. Clase B.	Autónomo y Pequeña empresa.	35.000	45.000	35.000	130.000	130.000
	Mediana empresa.	30.000	40.000	30.000	110.000	110.000
	Gran empresa.	25.000	35.000	25.000	90.000	90.000
M. Clase I (longitud máxima de 15m).	Autónomo y Pequeña empresa.	50.000 <sup>1</sup>	60.000	22.000 <sup>1</sup>	170.000	170.000
	Mediana empresa.	40.000 <sup>1</sup>	50.000	18.000 <sup>1</sup>	145.000	145.000
	Gran empresa.	30.000 <sup>1</sup>	40.000	14.000 <sup>1</sup>	120.000	120.000
M. Clase I (longitud mayor de 15m).	Autónomo y Pequeña empresa.	60.000 <sup>1</sup>	70.000	25.000 <sup>1</sup>	200.000	200.000
	Mediana empresa.	50.000 <sup>1</sup>	60.000	20.000 <sup>1</sup>	175.000	175.000
	Gran empresa.	40.000 <sup>1</sup>	50.000	15.000 <sup>1</sup>	150.000	150.000
M. Clase II.	Autónomo y Pequeña empresa.	60.000 <sup>1</sup>	70.000	50.000 <sup>1</sup>	180.000	180.000
	Mediana empresa.	50.000 <sup>1</sup>	60.000	40.000 <sup>1</sup>	155.000	155.000
	Gran empresa.	40.000 <sup>1</sup>	50.000	30.000 <sup>1</sup>	130.000	130.000
M. Clase III.	Autónomo y Pequeña empresa.	30.000	40.000	30.000	180.000	180.000
	Mediana.	25.000	35.000	25.000	155.000	155.000
	Otras.	20.000	30.000	20.000	130.000	130.000
N2.	Autónomo y Pequeña empresa.	15.000 <sup>2</sup>	90.000	-	130.000	130.000
	Mediana empresa.	12.500 <sup>2</sup>	75.000	-	110.000	110.000
	Gran empresa.	10.000 <sup>2</sup>	60.000	-	90.000	90.000
N3, con masa máxima inferior a 16 toneladas.	Autónomo y Pequeña empresa.	25.000 <sup>2</sup>	100.000	-	170.000	170.000
	Mediana empresa.	20.000 <sup>2</sup>	85.000	-	145.000	145.000
	Gran empresa.	15.000 <sup>2</sup>	70.000	-	120.000	120.000

Potencia de punto de recarga	Importe unitario de la subvención (€)
Punto de recarga de baterías para vehículos eléctricos totalmente instalado y con acceso para vehículos pesados, con potencia igual o superior a 50 kW e inferior a 100 kW.	10.000
Punto de recarga de baterías para vehículos eléctricos totalmente instalado y con acceso para vehículos pesados, con potencia igual o superior a 100 kW e inferior a 150 kW.	25.000

Potencia de punto de recarga	Importe unitario de la subvención (€)
Punto de recarga de baterías para vehículos eléctricos totalmente instalado y con acceso para vehículos pesados, con potencia igual o superior 150 kW e inferior a 350 kW.	40.000
Punto de recarga de baterías para vehículos eléctricos totalmente instalado y con acceso para vehículos pesados, con potencia igual o superior 350 kW.	70.000

Source: [Royal Decree 983/2021](#)

## Sweden

In Sweden the '[Klimapremien](#)' is the collective name for a government subsidy for a number of vehicle types. In 2022 a new climate premium for electric lorries and equipment was launched and administered by the Swedish Energy Agency. This new premium, combined with the previous electric bus premium, has a total budget of SEK 120 million (€12 mil). The 'environmental' and 'electrical' trucks refer to heavy trucks with a total weight of over 3.5 tonnes powered by bioethanol, gas or electricity (from a fuel cell or battery). Trucks powered by a combination of the above fuels are also eligible for support, for example plug-in hybrids running on both electricity and bioethanol or gas. The aid may not exceed 40% of the cost gap with a conventional diesel truck and is capped at a maximum of 20% of the purchase price. Leased vehicles are eligible for support, on the condition that the lessee purchases the vehicle after the end of the leasing period. For infrastructure the '[Klimatklivet](#)' is the main funding instrument for public and private charging and refuelling stations, both for passenger and commercial vehicles.

## United Kingdom

Trucks in the U.K. account for 16% of domestic transport emissions and a [100% zero emission sales target](#) has been set for trucks between 3.5t to 26t for the year 2035. An additional 5 years is given to the remaining vehicle classes. The country's draft National Energy and Climate Plan (NECP) outlines the extension of the e-mobility '[Plug-in grant for large vans and trucks](#)'. About 20% of the vehicle purchase price, with a maximum grant rate of €19,000 per truck under 12t and €29,000 per truck above 12t, will be covered. The grant has just been extended for another 2 years until 2024 and has a total budget of £532 million, encouraging the purchase of trucks that are at least at Euro VI emissions levels, demonstrate significant CO<sub>2</sub> emissions savings (-50%) compared to a conventional vehicle and have a minimum zero emission range of 60 miles. The U.K. government announced a '[Zero emission](#)

[road freight demonstrator program](#)' (ZERFT) with £200 million this year to showcase the feasibility of ZETs and collect data. At the same time, the government is considering an extension of the ZEV purchase grants, including the Plug-in Truck Grant. £200 mil. of the ZERFT will be used to showcase the feasibility of [FCETs](#) and [BETs](#) and collect data this year. Part of the British ZERFT program is a cross-modal forum to allow for governmental authorities and the freight stakeholders to start the work of delivering a public refuelling and recharging network for HDVs.