

JRC TECHNICAL REPORTS

Revision of the EU Green Public Procurement Criteria for Transport

*Technical report and
criteria proposal (1st draft)*

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1 INTRODUCTION

1.1 Green public procurement

Public authorities' expenditures in the purchase of goods, services and works (excluding utilities and defence) constitute approximately 14% of the overall Gross Domestic Product (GDP) in Europe, accounting for roughly EUR 1.8 trillion annually (European Commission, 2016).

Thus, public procurement has the potential to provide significant leverage in seeking to influence the market and to achieve environmental improvements in the public sector. This effect can be particularly significant for goods, services and works (referred to collectively as products) that account for a high share of public purchasing combined with the substantial improvement potential for environmental performance. The European Commission has identified (road) transport as one such product group.

Green Public Procurement (GPP) is defined in the Commission's Communication "COM (2008) 400 - Public procurement for a better environment" as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured."

Therefore, by choosing to purchase products with lower environmental impacts, public authorities can make an important contribution to reducing the direct environmental impact resulting from their activities. Moreover, by promoting and using GPP, public authorities can provide industry with real incentives for developing green technologies and products. In some sectors, public purchasers command a large share of the market (e.g. public transport and construction, health services and education) and so their decisions have considerable impact. In fact, in the above mentioned Commission's communication the capability that public procurement has to shape production and consumption trends, increase demand for "greener" products and services and provide incentives for companies to develop environmental friendly technologies is clearly emphasised.

EU GPP is a voluntary instrument, meaning that Member States and public authorities can determine the extent to which they implement it.

The development of EU GPP criteria aims to help public authorities ensure that the goods, services and works they require are procured and executed in a way that reduces their associated environmental impacts. The criteria are thus formulated in such a way that they can be, if deemed appropriate by the individual authority, integrated into its tender documents with minimal editing.

GPP criteria are to be understood as being part of the procurement process and must conform to its standard format and rules as laid out by Public Procurement Directive 2014/24/EU (public works, supply and service contracts). Hence, EU GPP criteria must comply with the guiding principles of: Free movement of goods and services and freedom of establishment; Non-discrimination and equal treatment; Transparency; Proportionality and Mutual recognition. GPP criteria must be verifiable and it should be formulated either as Selection criteria, Technical specifications, Award criteria or Contract performance clauses, which can be understood as follows:

Selection Criteria (SC): Selection criteria refer to the tenderer, *i.e.*, the company tendering for the contract, and not to the product being procured. It may relate to suitability to pursue the professional activity, economic and financial standing and technical and professional ability and may- for services and works contracts - ask specifically about their ability to apply environmental management measures when carrying out the contract.

Technical Specifications (TS): Technical specifications constitute minimum compliance requirements that must be met by all tenders. It must be linked to the contract's subject matter (the 'subject matter' of a contract is about what good, service or work is intended to be procured. It can consist in a description of the product, but can also take the form of a functional or performance based definition.) and must not concern general corporate practices but only characteristics specific to the product being procured. Link to the subject matter can concern any stage of the product's life-cycle, including its supply-chain, even if not obvious in the final product, *i.e.*, not part of the material substance of the product. Offers not complying with the technical specifications must be rejected. Technical specifications are not scored for award purposes; they are strictly pass/fail requirements.

Award Criteria (AC): At the award stage, the contracting authority evaluates the quality of the tenders and compares costs. Contracts are awarded on the basis of most economically advantageous tender (MEAT). MEAT includes a cost element and a wide range of other factors that may influence the value of a tender from the point of view of the contracting authority including environmental aspects (European Commission, 2016). Everything that is evaluated and scored for award purposes is an award criterion. These may refer to characteristics of goods or to the way in which services or works will be performed (in this case they cannot be verified at the award stage since they refer to future events. Therefore, in this case, the criteria are to be understood as commitments to carry out services or works in a specific way and should be monitored/verified during the execution of the contract via a contract performance clause). As technical specifications, also award criteria must be linked to the contract's subject matter and must not concern general corporate practices but only characteristics specific to the product being procured. Link to the subject matter can concern any stage of the product's life-cycle, including its supply-chain, even if not obvious in the final product, *i.e.*, not part of the material substance of the product. Award criteria can be used to stimulate additional environmental performance without being mandatory and, therefore, without foreclosing the market for products not reaching the proposed level of performance.

Contract Performance Clauses (CPC): Contract performance clauses are used to specify how a contract must be carried out. As technical specifications and award criteria, also contract performance clauses must be linked to the contract's subject matter and must not concern general corporate practices but only those specific to the product being procured. Link to the subject matter can concern any stage of the product's life-cycle, including its supply-chain, even if not obvious in the final product, *i.e.*, not part of the material substance of the product. The economic operator may not be requested to prove compliance with the contract performance clauses during the procurement procedure. Contract performance clauses are not scored for award purposes. Compliance with contract performance clauses should be monitored during the execution of the contract, therefore after it has been awarded. It may be linked to penalties or bonuses under the contract in order to ensure compliance.

For each criterion there is a choice between two levels of environmental ambition, which the contracting authority can choose from according to its particular goals and/or constraints:

The **Core criteria** are designed to allow easy application of GPP, focussing on the key areas of environmental performance of a product and aimed at keeping administrative costs for companies to a minimum.

The **Comprehensive criteria** take into account more aspects or higher levels of environmental performance, for use by authorities that want to go further in supporting environmental and innovation goals.

As said before, the development of EU GPP criteria aims to help public authorities ensure that the goods, services and works they require are procured and executed in

a way that reduces their associated environmental impacts and is focused on the products' most significant improvement areas, resulting from the cross-check between the key environmental hot-spots and market analysis. This development also requires an understanding of commonly used procurement practices and processes and the taking on board of learnings from the actors involved in successfully fulfilling contracts.

For this reason, the European Commission has developed a process aimed at bringing together both technical and procurement experts to collate a broad body of evidence and to develop, in a consensus oriented manner, a proposal for precise and verifiable criteria that can be used to procure products with a reduced environmental impact.

This report presents the findings resulting from that process up to the 1st ad-hoc working group meeting that will be held in Seville on 23rd November 2016. Consultation questions are integrated in the document and will serve for updating the document in a later stage of the project.

A detailed environmental and market analysis, as well as an assessment of potential improvement areas, was conducted within the framework of this project and was presented in the Preliminary Report on EU Green Public Procurement Criteria for Transport. This report can be publicly accessed at the JRC website for Transport (<http://susproc.jrc.ec.europa.eu/Transport/index.html>). The main findings presented in the Preliminary Report are summarised in the next chapter.

2 SUMMARY OF THE PRELIMINARY REPORT

2.1 Scope and definitions

The first stage of the revision of the EU GPP criteria for transport was to review the scope of the 2012 criteria (European Commission, 2012), i.e. the product groups covered by the criteria, and the definition of these product groups. This was informed by:

- An overview of existing legislation, standards and criteria. This included a review of relevant EU legislation, a review of national GPP criteria and relevant labels and a review of relevant standards and guidelines used by the private sector. These reviews were also used to inform the proposals for the revision of the criteria themselves, as presented in Sections 3 to 8 of this report.
- A review of potential definitions. This provided an overview of the statistical and technical categories, such as those in EU legislation, including the Common Procurement Vocabulary (CPV) codes, which could be used to define different product groups for the revised EU GPP criteria.
- A stakeholder survey. This asked stakeholders for their views on the scope of the 2012 criteria and the possible statistical or technical category that might be used to define the respective product groups. The survey also asked stakeholders for their views on revising the criteria, which was used to inform the proposals presented in Sections 3 to 8 of this report.

The 2012 EU GPP criteria for transport covered five products groups, i.e.:

- Passenger cars and light commercial vehicles (LCVs): Purchase or lease.
- Public transport vehicles (bus procurement): Purchase or lease.
- Public transport services: Provision of bus services.
- Waste collection trucks: Purchase or lease.
- Waste collection services: Provision of waste collection services.

On the basis of the information reviewed and the feedback from stakeholders, it was concluded that these five product categories should be retained for the revised criteria, and that two additional product groups should be added.

For all five product categories in the 2012 criteria, no change of their coverage or definitions is needed, although the titles of the two 'public transport' product groups have been amended to explicitly refer to 'buses', as that is their focus rather than on rail-based public transport, for example.

It was concluded that the following definitions would be appropriate for each of these product groups:

1) 'Procurement, lease or rental of cars, LCV and L-category vehicles'.

The information available regarding short term renting services show that these services offer very young vehicles, which are usually below 1 year old. Therefore, renting services are proposed to be part of category 1.

- 'Cars and LCVs': M₁ and N₁ vehicles, as defined by Directive 2007/46;
- 'L-category' vehicles as defined by Regulation 168/2013.

2) 'Mobility services'.

It is proposed a new service category covering mobility services involving cars, LCVs and L-category vehicles. As part of these criteria, the following definitions might be applied:

- 'Taxi services' as covered by CPV code 60120000-5.
- 'Cycles': Bicycles (CPV codes 34430000-0 and 34431000-7), cycle trailers, electrically power assisted cycles (CPV code 34420000-7),

- 'Light electric vehicles and self-balancing vehicles' whose specific definitions are under development by CEN/TC 354 /WG 4.

3) 'Buses'

- 'M₂ and M₃ vehicles, as defined by Directive 2007/46.

The definition of the categories 4), 5), 6) and 7) would also make reference to the definitions of categories 1) , 2) and 3), where relevant, but also to CPV categories, as appropriate, i.e.:

4) 'Bus services'

- 'Bus services' or 'Public transport services': The services should be defined as those covered by CPV codes 60112000-6 (Public road transport services), 60130000-8 (Special-purpose road passenger-transport services) and 60140000-1 (Non-scheduled passenger transport). This should cover the contracted public transport services (contracted public transport done by taxi companies, i.e. transport carried out for pupils/students who are not able travelling by themselves). It is worth noting that these three CPV categories refer directly to the definition of public transport services in the public procurement Directives with the explicit exception of rail public transport services.

5) 'Waste collection trucks':

- Vehicles of category N₂ and N₃, as defined by Directive 2007/46, that are designed to provide services that fall into the CPV categories of 'Refuse collection services' (CPV code: 90511000-2), 'Refuse transport services' (90512000-9) and 'Refuse recycling services' (90514000-3).

6) 'Waste collection services'

- Services that fall into the CPV categories of 'Refuse collection services' (90511000-2), 'Refuse transport services' (90512000-9) and 'Refuse recycling services' (90514000-3).

7) 'Post, courier and moving services':

- Services that fall into the CPV categories for various postal, courier and moving services:
 - o Group 641 Post and courier services, with the exception of rail, airmail and mail transport over water
 - o 79613000-4 Employee relocation services
 - o 63100000-0 Cargo handling and storage services
 - o 98392000-7 Relocation services

As part of the revision process, it was recommended to add two categories.

The first category that should be added is '**Mobility services**'. This product group concerns all kinds of services for mobility of public authorities' staff with vehicles that are (partly) driven by others, including different transport modes, as well as car sharing concessions. This includes for example taxi services but also broader mobility service packages as offered by some more advanced lease companies. Such packages can include access to (leased) cars or LCVs, but also 'L-category' vehicles (i.e. two-, three- and small four-wheeled vehicles), bicycles, as well as access to car-sharing schemes, public transport cards or multi-modal transport cards, etc. One of the differences with the first category (purchase or lease of cars, LCVs and L-category vehicles) is that this new category does not (only) include vehicles driven by public staff or elected representatives, but (also) driven by others. These can be either taxi drivers or users of car sharing schemes. Furthermore, it can also include services with other vehicle types than cars or LCVs (e.g. two-wheelers or public transport vehicles). Another important difference is that the provision of mobility services involves the use of a service fleet.

For a better understanding of the mobility services or 'Mobility as a service' (MaaS) concept, the following definitions will be used in this report (Holmberg, Collado, Sarasini, & Williander, 2016):

- Simplified car ownership: it offers their customers to share the ownership of a car with other users.
- Peer transport services: it leverages the excess of capacity (empty seats during a trip) and shares it with users. The MaaS provider does not own the vehicles, it only provides the platform for the pairing. The main example is Uber.
- Car sharing: in this category, an organisation owns the vehicles and the platform. It is usually more standardised and reliable than the peer services, and some carmakers have an associated car sharing company.
- Extended multimodal planners: they combine all the available transport options with real time transport data in order to help users plan the most efficient route to their destination. Some services can go beyond just planning by allowing you to purchase the necessary tickets for the suggest route.
- Combined mobility services (CMS); neutral third-party, commercial such as UbiGo and MaaS.fi or otherwise, that offer a wide range of combined mobility options and offer it to users based on subscription and unified invoicing, possibly also with some form of repackaging of the included services. CMS is also supported by some form of digital interface for the customer (app, web based service etc).
- Integrated public transport systems: they aim at designing public transport in a way that it can easily integrate other mobility offers (e.g. car sharing, bike sharing, taxis, etc.). In Austria, the SMILE-project 4 2014-2015, aimed to include public transport, urban mobility services and national railway in the same concept offering planning options and ability to book and obtain tickets in the same app (without subscription or packaging
- Mobility Broker: this concept also offers mobility subscriptions but these services go one step further in that mobility is offered as part of the house rent. This demands that mobility services be included in the initial planning process of apartment complexes or city areas. The drive for such services is to enable densification of cities without the need of a personal car. There is currently no such offer in Sweden, however the Vinnova financed project "Dencity" aims at delivering a working concept for a Mobility Broker in Frihamnen, Gothenburg.

The scope proposal would cover those services that could be purchased by a public procurer using a tendering procedure. This would rule out peer transport services, extended multimodal planners and integrated public transport systems.

The second category that should be added is '**post, courier and moving services**'. This was supported by those that responded to the stakeholder survey, while criteria for all of these services already exist in the Dutch GPP criteria. These services should also be defined with reference to the relevant CPV categories, i.e.:

- 'Post and courier services': Group 641 Post and courier services, with the exception of rail, airmail and mail transport over water, and 63100000-0 Cargo handling and storage services.
- 'Moving services': 79613000-4 Employee relocation services and 98392000-7 Relocation services.

In summary, the product groups covered by this report, in Sections 3 to 8, respectively, are:

- Purchase or lease of cars, LCVs and L-category vehicles.
- Provision of mobility services.

- Purchase or lease of buses.
- Provision of bus services.
- Purchase or lease of waste collection trucks.
- Provision of waste collection services.
- Provision of post, courier and moving services.

2.2 Market analysis

The size of the overall markets for the vehicles and services in the product groups covered by the revised EU GPP criteria, and the proportion of these markets that might be procured by the public sector, are summarised in Table 1. Of these figures, those for the size of the car and LCV market are most certain, as these are based on industry figures, while the size of the post and courier market is based on a dedicated report. The other figures included in Table 1 are estimates for the EU based on information for a small number of countries, or even a single EU Member State. For 'services' in particular, it was challenging to identify the scale of the EU market, and in many cases it was not possible to identify relevant information.

Table 1: The size of the respective markets and the role of the public sector in these

Vehicle/service	Size of the EU market	Proportion of which is operated/purchased by the public sector (estimates)
Passenger cars	12.5 million vehicles	3.4% (420 000 vehicles)
Light commercial vehicles	1.5 million vehicles	2.8% (43 000 vehicles)
Buses	24 000	75% (18 000 vehicles)
Waste collection trucks	4 500	Nearly 100% (4 500 vehicles)
Post and courier services	€94 million	No more than 5% (postal) No more than 1% (courier)
Moving services	No data	No more than 2%

Source: Preliminary Report.

Even with the partial estimates provided in Table 1, it might be concluded that the public sector is responsible for procuring around 500 000 vehicles a year and relevant services that might have a value in the order of billions of Euros, particularly when considering that no information was available for bus or waste collection services.

Where information was available, it was clear that the vehicle markets are still dominated by vehicles using diesel and petrol, rather than those using alternative fuels, while the fleets are dominated by vehicles that meet Euro emissions standards of Euro 4/IV or earlier. The proportion of Euro 5/V and Euro 6/VI vehicles in the car and LCV fleets is likely to increase at a faster rate than in the bus and waste collection vehicle fleets, as the former tend to have short lifespans.

2.3 Key environmental hotspots and improvement options

The analysis of the environmental hotspots showed that for all categories the main environmental impacts are related to the use phase of the vehicles. The main impacts during the use phase are the GHG emissions, air pollutant emissions and noise.

Closely related to the use phase are the environmental impacts related to the production of energy carriers (liquid or gaseous fuels or electricity). The main environmental issues of the supply chain of energy carriers are GHG emissions and air polluting emissions.

Other environmental impacts occur during vehicle manufacturing, which is more relevant for electric vehicles where the battery manufacturing is the most impacting component. The reduction of the environmental impact of electric vehicles during the use phase, however, outweighs the negative environmental impacts of the additional emissions in the production phase (see section 3.5.1 of the Preliminary report).

DRAFT

3 CATEGORY 1: PURCHASE, LEASE OR RENTAL OF CARS, LCVS AND L-CATEGORY VEHICLES

3.1 Overview of the revision of the EU GPP criteria

The tables below show a summary of the revision proposal for the current EU GPP criteria of the category 'purchase and lease of cars and LCVs'. The proposal is further described in the following sections.

Purchase/lease of cars and LCV					
		Current criterion	Core	Compr	Revision
TECHNICAL SPECIFICATIONS	1	CO ₂ emissions	X	X	Updated
	2	Exhaust gas emissions	X	X	Updated
	3	Eco-driving	X	X	Updated
	4	Gear shift indicators (GSI)	---	X	Updated
	5	Tyre Pressure Monitoring Systems (TPMS)	---	X	Updated
	6	Fuel consumption display	---	X	Updated
	7	Air conditioning gases	---	X	Updated
	8	Lubricant oils	---	X	Updated
	9	Vehicle tyres – noise	---	X	Updated
	10	Vehicle tyres – rolling resistance	---	X	Updated
AWARD CRITERIA	1	Use of alternative fuels	X	X	Updated
	2	Noise emission levels	X	X	Updated
	3	Lower CO ₂ emissions	X	X	Updated
	4	Vehicle materials	---	X	Updated
	5	Start and stop	---	X	Discarded

Purchase/lease/rental of cars, LCV and L-category vehicles				
	Proposed criterion	Core	Compr	
TECHNICAL SPECIFICATIONS	1	GHG emissions	X	X
	2	Exhaust gas emissions	X	X
	3	Vehicle specific eco-driving information	X	X
	4	Gear shift indicators (GSI)	X	
	5	Tyre Pressure Monitoring Systems (TPMS)	X	X
	6	Energy consumption displays	X	X
	7	Lubricant oils	X	X
	8	Vehicle tyres – rolling resistance	X	X
	9	Speed limiter		X
	10	Vehicle tyres – noise		X
	11	Minimum warranty of the battery	X	X
AWARD CRITERIA	1	Lower GHG emissions	X	X
	2	Energy efficiency		X
	3	Improved air polluting emissions performance	X	
	4	Zero tailpipe emission capability	X	
	5	Traffic information and route optimisation	X	X
	6	Speed limiter	X	
	7	Tyre noise	X	
	8	Vehicle noise	X	X
	9	Vehicle materials	X	X
	10	Lubricant oils, hydraulic fluids and grease	X	X
	11	Extended warranty	X	X
12	Reuse of the battery	X	X	

New criteria are indicated in bold

3.2 Criteria proposal

3.2.1 GHG emissions

3.2.1.1 Rationale

Incentives for improved internal combustion engine vehicles (ICEVs) and alternative powertrains

The use phase of the vehicles has by far the largest share in the GHG emissions of cars and LCVs. There are various technical options for reducing these emissions, ranging from more fuel efficient vehicles (including hybrids), plug-in vehicles to full electric or fuel-cell vehicles. For the electric vehicles, the higher emissions related with vehicle production and the emissions from electricity generation may partly offset the lower use phase emissions. However, when taking account the full lifecycle, GHG emissions of electric vehicles are still lower than those of petrol or diesel cars (see section 3.5.1 of the Preliminary report).

Setting requirements for NEDC CO₂ type approval values in EU GPP criteria gives different types of incentives, depending on the CO₂ value:

- The purchase of more fuel efficient ICEVs
- The purchase of plug-in electric vehicles:
- The purchase of zero (tailpipe) emissions vehicles (ZEVs): full electric and fuel cell electric vehicles perform 0 g CO₂/km (type approval).

Costs of improved ICEVs and alternative powertrains

Increasing the fuel-efficiency of petrol and diesel cars (including hybrids) generally increases the purchase price, but will also lower fuel costs over the lifetime of the vehicle. The analysis of the total cost of ownership as included in the Preliminary Report shows that the total energy cost savings over the entire lifetime exceed the additional vehicle purchase price for the top-10 ICEVs in terms of lowest CO₂ values (except for large passenger cars with low annual mileages, e.g. 10 000 km/year) (see section 3.5.2 of the Preliminary report).

For plug-hybrid and full electric vehicles the higher purchase cost is not compensated by the fuel cost savings over the vehicle lifetime. Based on data for the Volkswagen Golf, the total cost of ownership (TCO) (excluding taxes) of a full electric car is estimated to be around €2 cents per vehicle-kilometre higher (assuming 17 000 km/year), compared to a petrol car of the same size (see section 3.5.2 of the Preliminary report). This implies GHG abatement cost about €200 per tonne of CO₂. The number of full electric and plug-in cars on the market will increase in the coming years and so will the electric range of EVs. These models will come on the market in 2016 and 2017 at prices around €31 000.

In the case of L-category vehicles (two and three wheelers and quadricycles), the criteria proposal is focused on powered two-wheelers (PTW) which cover mopeds (L1e) and motorcycles (L3e). Electric PTWs still account for only 0.3% of the market; however they experienced a 60% surge in purchases between 2009 and 2010, and a similar growth in 2011.

Moving target

The CO₂ emissions of new cars and LCVs are expected to decrease significantly because of the 2020/2021 targets set in the CO₂ emission regulations. Therefore the supply of low- and zero tailpipe emission vehicles will need to increase. The requirements of the Regulations should be taken into account in the EU GPP criteria; otherwise those criteria will be either too stringent for the short term or be outdated very soon. To take account

of this 'moving target', the proposed CO₂ values in the criteria set are changing over time.

On average the type approval CO₂ value of new passenger cars needs to decrease 21% between 2015 (119.6 g/km) and 2021 (95 g/km). The emission values for the core criteria are based on what is expected to be the maximum type approval CO₂ emissions in the top-10 of the most fuel efficient ICEVs. For cars the values proposed are based on the performance of the most efficient petrol vehicles (see section 3.5.2 of the Preliminary report). For the comprehensive criteria, the CO₂ values are set at the level that can be met by PHEVs (plug-in hybrid electric vehicles) and REEVs (range extended electric vehicles). In the case of BEVs (battery electric vehicles) and fuel cell electric vehicles, tailpipe emissions are zero.

Worldwide harmonised Light vehicle Test Procedure (WLTP)

Currently, the type approval values are determined by the New European Driving Cycle (NEDC) test cycle. In the near future (between 2017 and 2019) the type approval will change to the WLTP test cycle. However, as the 2021 CO₂ emission target for cars of 95 g/km and 2020 target for LCVs of 147 g/km are both defined in terms of NEDC emissions, the EU GPP criteria can continue to be defined in terms of NEDC type approval emissions during that period. The Commission has prepared proposals regarding the correlation of WLTP and NEDC values and on the translation from NEDC to WLTP target values, which are expected to be adopted in the course of 2017.

It is known that the real world CO₂ emissions are generally higher than the type approval value, although the "gap" is not as large as for NO_x emissions. The switch to WLTP should contribute to closing the gap and bringing the type approval values closer to the real world ones.

Tank-to-wheel (TTW) or Well-to-wheel (WTW)

Both the NEDC and WLTP type approval CO₂ value only cover the tailpipe emissions during the use phase of the car (tank-to-wheel emissions, TTW). The assessment made in the Preliminary report has shown that CO₂ criteria for cars and LCVs based on the WTW emissions would not significantly change the incentive to the market, as the WTW emissions for ICEVs are proportional to TTW emissions. The gap between ICEVs and BEVs would be smaller, but the latter would still have significantly lower emission values. The same is true with a complete lifecycle approach, i.e. when also considering the emissions from vehicle manufacturing and end-of-life processing. In that case, the GHG emissions of BEVs would still be lower than of a petrol car (see Section 3.5.3 of the Preliminary report).

The limitation of criteria based on a TTW metric is that this does not provide incentives for improving the energy efficiency of BEVs (which in turn may reduce GHG emissions caused by electricity generation). This could be solved by setting an award criterion for those offers with higher energy efficiencies.

Defining the GHG criteria in terms of WTW emissions would complicate the criteria: WTW emission values would then need to be set for each fuel/energy carrier at EU level, together with a formula to calculate the WTW emissions. Therefore, the application would become more complex. As an offset, it would provide a technology-neutral approach and set a level-playing field for all technologies.

Two options are proposed for the technical specification to be discussed with the stakeholders:

- Option 1: a technical specification based on NEDC CO₂ type approval, which would select the most fuel efficient ICEV at the core level, and semi and full electric vehicles at the comprehensive level. An additional award criterion based on energy efficiency would complement the comprehensive TS.

- Option 2: a technical specification based on CO₂ type approval translated into WTW GHG emissions. This option would require setting values for calculating well-to-tank (WTT) emissions based on recognised references

These references would be the ones within the study carried out by JRC, EUCAR and CONCAWE (JEC - Joint Research Centre-EUCAR-CONCAWE collaboration, 2014). For the electricity, the study carried out by JRC, EUCAR and CONCAWE uses data from 2009 (11.8% share of renewable energy in the primary energy). According to the EU projections (European Commission, 2010), the share of renewable energy sources in gross final energy demand is projected to increase over time to reach 14.8% in 2020 and 18.4% in 2030. The report 'EU Reference Scenario 2016 Energy, Transport and GHG Emissions Trends to 2050' (European Commission, 2016) also support this evolution of the generation mix, which will lead to a steady decrease in carbon intensity of power generation. . For that reason, it is proposed to apply the average carbon intensity over the period 2010 - 2020 recommended by the Methodology for Ecodesign of Energy-related Products, which is based on those projections (COWI; VHK, 2011)

Number of vehicle segments distinguished

In the current EU GPP criteria, the number of vehicle segments that is distinguished is larger than what seems to be really necessary from a procurement perspective. Distinguishing three size segments provides sufficient differentiation to cover the variation in CO₂ emissions and cover the main different vehicle segments. Therefore, in the proposed set, the number of vehicle segments has been reduced.

3.2.1.2 Proposed criteria

Core criteria	Comprehensive criteria																												
Technical Specification																													
<p>TS1. Type-approval CO₂ value</p> <p>According to the vehicle's technical sheet, type approval CO₂ emissions for vehicles shall not exceed the following values:</p> <table border="1"> <thead> <tr> <th>Vehicle type</th> <th>CO₂ g/km</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Small (car)</td> <td>2018: 85</td> </tr> <tr> <td>2019: 81</td> </tr> <tr> <td>2020: 77</td> </tr> <tr> <td>2021: 74</td> </tr> <tr> <td rowspan="4">Mid-size (car)</td> <td>2018: 93</td> </tr> <tr> <td>2019: 89</td> </tr> <tr> <td>2020: 85</td> </tr> <tr> <td>2021: 81</td> </tr> <tr> <td rowspan="4">Large (car)</td> <td>2018: 106</td> </tr> <tr> <td>2019: 101</td> </tr> <tr> <td>2020: 96</td> </tr> <tr> <td>2021: 92</td> </tr> <tr> <td rowspan="3">Small (N1 class I)</td> <td>2018: 102</td> </tr> <tr> <td>2019: 99</td> </tr> <tr> <td>2020: 97</td> </tr> <tr> <td rowspan="3">Mid-size (N1 class II)</td> <td>2018: 144</td> </tr> <tr> <td>2019: 141</td> </tr> <tr> <td>2020: 138</td> </tr> <tr> <td rowspan="2">Large (N1 class III)</td> <td>2018: 163</td> </tr> <tr> <td>2019: 159</td> </tr> </tbody> </table>	Vehicle type	CO ₂ g/km	Small (car)	2018: 85	2019: 81	2020: 77	2021: 74	Mid-size (car)	2018: 93	2019: 89	2020: 85	2021: 81	Large (car)	2018: 106	2019: 101	2020: 96	2021: 92	Small (N1 class I)	2018: 102	2019: 99	2020: 97	Mid-size (N1 class II)	2018: 144	2019: 141	2020: 138	Large (N1 class III)	2018: 163	2019: 159	<p>TS1. Type-approval CO₂ value</p> <p>According to the vehicle technical sheet, type-approval CO₂ emissions for vehicles shall not exceed 50 g/km.</p> <p>L-category vehicles shall be electric.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where the type approval CO₂ emissions are stated.</p>
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	2019: 159																												

	2020: 156	
<p>Verification: The tenderer shall provide the technical sheet of the vehicle where the type approval CO₂ emissions are stated.</p>		
<p>Core criteria</p>	<p>Comprehensive criteria</p>	
<p>Award criteria</p>		
<p>AC1. Lower CO₂ emissions Points will be awarded to vehicles presenting lower type approval CO₂ emissions than those required in TS1, in proportion to the reduction achieved. Verification: See above TS1</p>		
		<p>AC2 Energy efficiency For BEV, points will be awarded to those vehicles with higher energy efficiency expressed in kWh/100km NEDC test procedure Verification: The tenderer shall provide the technical sheet of the vehicle where the energy efficiency is stated.</p>

Option 2

Core criteria	Comprehensive criteria																								
Technical Specification																									
<p>TS1. WTW CO₂ emissions</p> <p>WTW CO₂ emissions of vehicles shall not exceed the following values:</p> <table border="1" data-bbox="204 477 783 1193"> <thead> <tr> <th>Vehicle type</th> <th>CO₂ g/km</th> </tr> </thead> <tbody> <tr> <td>Small (car)</td> <td>2018: 101 2019: 96 2020: 88 2021: 88</td> </tr> <tr> <td>Mid-size (car)</td> <td>2018: 110 2019: 106 2020: 101 2021: 96</td> </tr> <tr> <td>Large (car)</td> <td>2018: 126 2019: 120 2020: 114 2021: 109</td> </tr> <tr> <td>Small (N1 class I)</td> <td>2018: 123 2019: 120 2020: 117</td> </tr> <tr> <td>Mid-size (N1 class II)</td> <td>2018: 174 2019: 171 2020: 167</td> </tr> <tr> <td>Large (N1 class III)</td> <td>2018: 197 2019: 192 2020: 189</td> </tr> </tbody> </table>	Vehicle type	CO ₂ g/km	Small (car)	2018: 101 2019: 96 2020: 88 2021: 88	Mid-size (car)	2018: 110 2019: 106 2020: 101 2021: 96	Large (car)	2018: 126 2019: 120 2020: 114 2021: 109	Small (N1 class I)	2018: 123 2019: 120 2020: 117	Mid-size (N1 class II)	2018: 174 2019: 171 2020: 167	Large (N1 class III)	2018: 197 2019: 192 2020: 189	<p>TS1. WTW CO₂ emissions</p> <p>WTW CO₂ emissions of vehicles shall not exceed the following values:</p> <table border="1" data-bbox="805 521 1385 656"> <thead> <tr> <th>Vehicle type</th> <th>WTW CO₂ g/km</th> </tr> </thead> <tbody> <tr> <td>Small</td> <td>80</td> </tr> <tr> <td>Mid-size</td> <td>85</td> </tr> <tr> <td>Large-size</td> <td>90</td> </tr> </tbody> </table> <p>The WTW emissions will be calculated by multiplying the NEDC CO₂ type approval by the following factors (see core TS):</p> <p>* For petrol and diesel, the factor shall be applied to the type approval TTW CO₂ emissions value; for electricity and hydrogen to the type approval energy consumption.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where the CO₂ emissions or the energy consumption are stated.</p>	Vehicle type	WTW CO ₂ g/km	Small	80	Mid-size	85	Large-size	90		
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<p>The WTW emissions will be calculated by multiplying the CO₂ type approval by the following factors:</p> <table border="1" data-bbox="204 1305 762 2004"> <thead> <tr> <th>Fuel / energy carrier</th> <th>Factor*</th> <th>Reference</th> </tr> </thead> <tbody> <tr> <td>Petrol</td> <td>1.188</td> <td>JEC report</td> </tr> <tr> <td>Diesel</td> <td>1.210</td> <td>JEC report</td> </tr> <tr> <td>LPG</td> <td>1.123</td> <td>JEC report</td> </tr> <tr> <td>CNG</td> <td>1.066</td> <td>JEC report</td> </tr> <tr> <td>Electricity</td> <td>0.384 g CO₂eq/Wh = 107 gCO₂eq/MJe</td> <td>MEErP</td> </tr> <tr> <td>Hydrogen from NG steam reforming</td> <td>115.2 gCO₂eq/MJf</td> <td>JEC report</td> </tr> <tr> <td>Hydrogen from</td> <td>254.4 gCO₂eq/MJf</td> <td>JEC report</td> </tr> </tbody> </table>	Fuel / energy carrier	Factor*	Reference	Petrol	1.188	JEC report	Diesel	1.210	JEC report	LPG	1.123	JEC report	CNG	1.066	JEC report	Electricity	0.384 g CO ₂ eq/Wh = 107 gCO ₂ eq/MJe	MEErP	Hydrogen from NG steam reforming	115.2 gCO ₂ eq/MJf	JEC report	Hydrogen from	254.4 gCO ₂ eq/MJf	JEC report	
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electrolysis with EU electricity mix			<p>* For petrol, diesel, LPG and CNG, the factor shall be applied to the type approval TTW CO₂ emissions value; for electricity and hydrogen to the type approval energy consumption expressed in MJf or Wh for electricity.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where the CO₂ emissions or the energy consumption are stated.</p>
Core criteria			Comprehensive criteria
Award criteria			
<p>AC1. Lower WTW CO₂ emissions</p> <p>Points will be awarded to vehicles presenting lower WTW CO₂ emissions than those required in TS1, in proportion to the reduction achieved.</p> <p>Verification:</p> <p>See above TS1</p>			

3.2.1.3 Consequences

The consequence of these criteria is that the core criteria would choose at least some of the most fuel efficient ICEVs (per segment), while the comprehensive criteria require the purchase of semi or full electric vehicles.

3.2.1.4 Consultation questions

- Should the CO₂ values in the core criteria distinguish petrol and diesel cars?
- Should the vehicle sizes be better defined? Should the thresholds be based proportional to the mass, as for the CO₂ targets?
- Are the values proposed under the core criterion sufficiently ambitious?
- The comprehensive criterion aims to stimulate the purchase or lease of BEVs, PHEVs and REEVs, rather than having a separate criterion for 'alternative fuels'. Do you agree with this approach?
- Do stakeholders see any ways to incorporate WTW emissions in relation to the required verification of the use of alternative fuels without increasing administrative costs unacceptably?

3.2.2 Air polluting emissions

3.2.2.1 Rationale

All newly registered cars and LCVs (M1, M2, N1 class I, II and III, and N2) have to comply with the Euro 6 emissions standard. Therefore, all EU GPP criteria for cars and LCVs should go beyond that. There are two options for this:

- Improving the air polluting emissions performance by the implementation of Euro 6c stage.
- Requiring zero emission capability.

Performance on the RDE test

For passenger cars and LCVs, the Real-Driving Emission (RDE) testing procedures will be introduced next year. The European Parliament agreed on requiring real 'Real Driving Emissions' (RDE) tests for all new models by September 2017, and for all new vehicles by September 2019 (stage Euro 6c), with a not to exceed value of 168 mgNO_x/km (2.1 times higher than the Euro 6 limit value). In a next step the not to exceed value will be 120 mgNO_x/km (1.5 times higher than the Euro 6 limit value), taking account of technical margins of error, by January 2020 for all new models (and by January 2021 for all new cars).

Regarding gasoline engines, the gasoline direct-injection (GDI) technology generates more particles than traditional gasoline engines. Euro 6c requires all vehicles to meet uniform PN standards, including those with spark-ignition GDI engines. According to ICCT (ICCT, 2015), it is expected that GDI vehicles will meet PN standards with relatively low-cost gasoline particulate filters

As soon as the Euro 6c become mandatory for all new vehicles from September 2019 onwards, transparent emission performance of new vehicles will be stated on the certificate of conformity. The GPP criteria should clearly go beyond the mandatory limits which are applicable for all new vehicles and properly account for vehicle which offer further reductions in pollutant emissions compared to the mandatory limits. .

Zero emission capability

Air quality in urban areas is one of the main impacts derived from the exhaust gases from vehicles, thus, a criterion is proposed to promote those technologies that can prove zero tailpipe emission capability. This concept can be expressed as the range (or the distance) that the vehicle is able to travel without emitting any air pollutant. This definition would include plug in-hybrid, pure electric and hydrogen vehicles, but would exclude hybrid technology. This criterion would be only relevant as core criterion and not as comprehensive criterion, since the GHG emissions technical specification already selects these technologies.

3.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
TS2. Air polluting emissions From September 2019 onwards, all new diesel vehicles shall comply with an RDE emission performance which is at most 0.5 times higher than Euro 6 limit values (conformity factor of 1.5). Petrol vehicles need to be equipped with a Gasoline Particle Filter. From January 2021 onwards, all new diesel	TS2. Air polluting emissions From September 2019 onwards, new (plug-in) diesel vehicles shall comply with an RDE emission performance which is at most 0.1 times higher than Euro 6 limit values. Petrol vehicles need to be equipped with a Gasoline Particle Filter

<p>vehicles shall comply with an RDE emission performance which is at most 0.1 times higher than Euro 6 limit values..</p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	<p>Verification: The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>
Award criteria	
<p>AC3. Improved air polluting emissions performance</p> <p>Points will be awarded to vehicles that have an RDE emission performance equivalent to Euro 6d (NO_x conformity factor of 1.5 or lower). Points will be awarded to GDI (gasoline direct injection) vehicles that are equipped with a Gasoline Particle Filter.</p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	
<p>AC4 Zero tailpipe emission capability</p> <p>Points will be awarded to those vehicles that can demonstrate at least 40 km of zero tailpipe emission capability, in proportion to the excess over this threshold.</p> <p><i>Note: this criterion would be only relevant as core criterion and not as comprehensive, since the comprehensive GHG emissions technical specification already selects zero emission capable technologies.</i></p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	

3.2.2.3 Consequences

These criteria proposal will reduce NO_x emissions. Further reductions are incentivised by TS1 and AC1. No additional burdens are expected, since it will be based on type approval and mandatory requirements.

3.2.2.4 Consultation questions

- Do you agree with the exceedance factor(s) proposed for the RDE for the core criteria?
- Do you agree on the criteria proposed on the gasoline particle filters?
- Do you agree with the zero emissions capabilities proposed? Is the threshold proposed appropriate?

3.2.3 Technical options to reduce GHG emissions

3.2.3.1 Rationale

There are various measures to reduce fuel consumption of passenger cars and LCVs. The LCA-review carried out for LDVs and described in the Preliminary Report (Annex B) has shown that the emissions in the use phase of passenger cars also depend on driving style and driving behaviour. This implies that measures that help drivers to improve their driving behaviour towards a more fuel-efficient driving style should be incentivised. These measures are described in section 3.5.3 of the Preliminary report. Other improvement options rely on the use of low GWP refrigerants and specific tyres and lubricants. These technical measures are described in section 3.5.3 of the Preliminary report.

Vehicle specific eco-driving information

The Technical Specification to provide cars and LCVs with information/instructions is still seen as relevant and therefore should be maintained. To highlight that this information should be vehicle specific it is renamed to Vehicle specific eco-driving information. The criteria proposed are more specified for vehicles with an electric drivetrain (including hybrids) with respect to the use of the regenerative braking in order to save energy. For Plug-in Hybrid Electric Vehicles and Range Extender Electric Vehicles specific instructions to maximize the kilometres driven electrically are included in the criteria.

Gear shift indicators (GSI) and tyre pressure monitoring systems (TPMS)

Gear shift indicators (GSI) and tyre pressure monitoring systems (TPMS) are all monitoring tools that help a driver to adjust their behaviour and all can reduce fuel consumption by a few percent. Both gear shift indicators (GSI) and tyre pressure monitoring systems (TPMS) are mandatory for new passenger cars, but not for LCVs. Because of this obligation for new passenger cars, GSI and TPMS will be implemented in a large share of the new passenger cars. TPMS can result in an average fuel consumption reduction of 1% (see section 3.5.3 of the Preliminary report) at relative low cost (€220 without shipping and installation). Taken together, GSI and TPMS have a cost-effectiveness of -€39 and -€64/tCO₂). Investment costs of gear shift indicators are even lower (€0-15) and the cost-effectiveness is estimated to be -€113/tCO₂.

Because GSI and TPMS are commercially available and cost-effective technologies, GSI and TPMS should be included as core criteria for LCVs.

Energy consumption displays

Energy consumption displays (or eco-driving displays) help car drivers to see whether their driving style adjustments have a positive impact on energy consumption and can reduce energy consumption between 0.3 and 1.1% for €0-20 installation cost (see 3.53 of the Preliminary Report). These displays are not mandatory yet, but could become mandatory in the coming years (Transport & Environment). Because these displays are also relevant for electric vehicles, the more broad term energy consumption display seems to be more appropriate than the current used term 'fuel consumption displays'.

Traffic information and route optimisation

The literature reviewed showed that congestion in roads could lead to an increase of emissions: the increase in emissions at 45 km/h (a typical average speed on urban roads) due to congestion was approximately 40% compared to a road with stable free-flow traffic (see section 3.5.1 of the Preliminary report). Traffic information and route optimisation systems are already available in many models (connected cars) but would entail the purchase of more expensive models (see section 3.5.2 of the Preliminary report). The saving potentials will depend on each specific situation, and on the

availability of intelligent traffic systems providing the needed traffic data. Therefore it is proposed as an award criterion.

The connected car is able to digitally connect and interact with its surroundings, including the infrastructure. The access to information on current traffic conditions on the road enables connected cars to dynamically optimise routes, minimising traffic congestions

There are three options of connectivity in cars: Embedded, Tethered and Integrated. The use of these different connectivity options differ across the various in-car services. These three connectivity solutions can be used simultaneously as appropriate for the proposed applications.

In an embedded system, a complete communication module, which consists of a modem and a Subscriber Identity Module (SIM), is permanently integrated into the car. The application runs on the built-in system and does not require the use of a smartphone

The tethered solution relies on the intelligence of the applications running in the vehicle, while an external SIM is used to enable connectivity. There are basically two ways to enable tethering. Either the vehicle features a built-in modem (with a SIM card slot) or an external modem on a user's mobile device is used, e.g. a smartphone. For safety and security solutions it remains an unreliable solution, given the need for the user to insert their SIM or activate their phone. The main benefits of tethered solutions with external modems are that they require less costly in-vehicle hardware and external modems are more likely to be up-to-date, given the higher replacement rate of mobile devices.

For the integrated approach, the connection is made through a mobile device and all applications and programs also run on the user's mobile device. The car hardware is just used for displaying and human machine interface.

The award criterion is proposed to promote the connectivity solutions that are part of vehicle, i.e., embedded systems. The reason behind is that the criterion must be applied to the subject matter, and the rest of systems rely on external SIMs. The safety also plays an important role.

Air conditioning gases

From 2017 onwards the GWP of air conditioning gases applied in mobile air conditioning systems should be below 150. This implies that the exceptions allowed under the current criterion will no longer be valid. Because the limit will become mandatory, the criterion will not provide an incentive for more environmentally-friendly refrigerant unless the criterion is changed into a more ambitious criterion. Alternative refrigerant options include CO₂ and the HFO refrigerant called R1234yf, which has been introduced in certain car models recently. These refrigerants have a GWP of 1 and 4, have a high energy efficiency, bring no or acceptable additional cost and are commercially available.

Given that the only currently available alternatives to meet the legal limit already perform very low GWP, an award criterion for lower GWP beyond that limit would be easily complied by all the vehicles and wouldn't bring any added value. Therefore it is proposed to be deleted.

Lubricant oils

This criterion related to LVL is relevant to improve the engine performance. According to the Preliminary report (see section 3.5.2 of the Preliminary report), the use of LVL is a cost effective option. Therefore, it is proposed to be set at both core and comprehensive levels. The current EU GPP criterion also covers other aspects on hazardous substances, biodegradability and raw materials that are addressed in Section 3.2.5

Vehicle tyres/rolling resistance

Like other fuel consumption measures, low rolling resistance tyres can reduce fuel consumption by a few percent. The best performing tyres according to the Tyre Labelling

Directive are widely available, but often not chosen by consumers due to low awareness (see also 3.5.3 of the Preliminary Report). There is, however, no additional cost associated with low resistance tyres. In addition to this, the Energy Efficiency Directive 2012/27/EU states:

'Central governments that purchase products, services or buildings, insofar as this is consistent with cost-effectiveness, economical feasibility, wider sustainability, technical suitability, as well as sufficient competition, shall: ...

..- purchase only tyres that comply with the criterion of having the highest fuel energy efficiency class, as defined by Regulation (EC) No 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters. This requirement shall not prevent public bodies from purchasing tyres with the highest wet grip class or external rolling noise class where justified by safety or public health reasons'

Given the market availability, it seems to be justified to also require governments to purchase new or retreaded tyres of the highest fuel energy efficiency class, as part of the EU GPP criteria. Therefore it is included as a technical specification for core and comprehensive.

Start and stop systems

Start and stop systems are applied in more than 50% of all new sold cars and LCVs and can therefore be seen as a commonly available technology able to reduce fuel consumption by a few percent. However, start and stop systems are already promoted through the criteria on type approval CO₂ emissions. Therefore, the new proposed criteria do not longer include start and stop systems as a criterion.

Speed limiters

Speed limiters are on-board devices that automatically limit the speed of a vehicle to a certain maximum speed as set in the device. Depending on the speed differences reached achieved similar reductions of CO₂ and air polluting emissions can be reached as with other on-board devices. Given this similar reduction potential, but given the fact that speed limiters are not as common as other on-board devices, speed limiters will be introduced as a comprehensive TS and core award criterion.

3.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Vehicle specific eco-driving information</p> <p>Cars/LCVs shall be equipped with information/instructions on eco driving relevant to the vehicle. In case of hybrid and electric vehicles, they shall include information on the use of the regenerative braking in order to save energy. For Plug-in Hybrid Electric Vehicles and Range Extender Electric Vehicles, they shall provide specific instructions to maximize the kilometres driven electrically</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	<p>TS3. Vehicle specific eco-driving information</p> <p>Cars/LCVs shall be equipped with information/instructions on eco driving relevant to the vehicle. They shall include information on the use of the regenerative braking in order to save energy. For Plug-in Hybrid Electric Vehicles and Range Extender Electric Vehicles, they shall provide specific instructions to maximize the kilometres driven electrically</p> <p><i>Note: this criterion is specifically worded for electric and plug –in hybrid vehicles since the TS1 will select these technologies.</i></p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>
<p>TS4. Gear shift indicators (GSI)</p> <p>In case of LCVs, the vehicle offered shall be equipped with a gear shift indicator.</p> <p><i>Note: this criterion is not relevant for electric and plug –in hybrid vehicles, so it is not part of the core criterion.</i></p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	
<p>TS5. Tyre Pressure Monitoring Systems (TPMS)</p> <p>In case of LCVs, the vehicle offered shall be equipped with tyre pressure monitoring systems (TPMS)</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	
<p>TS6. Energy consumption display</p> <p>The vehicles shall be equipped with a mechanism to display to the driver fuel consumption figures.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	
<p>TS7. Low viscosity lubricant oils</p> <p>The vehicles shall use low viscosity engine lubricant oils (LVL). LVL are those corresponding to SAE grade number 0W30 or 5W30 or equivalent 3.</p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended.</p>	
<p>TS8. Vehicle tyres – rolling resistance</p> <p>The rolling resistance for both new and retreaded tyres, expressed in kg/tonne shall comply with the highest fuel energy efficiency class, as defined by Regulation (EC) No 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters. The rolling resistance of tyres shall be tested according to the Annex I of Regulation (EC) No 1222/2009. This requirement shall not prevent the</p>	

public authority from purchasing tyres with the highest wet grip class where justified by safety.

Verification:

The tenderer shall provide the technical sheets of the tyres where this information is stated, together with the test reports according to Annex I of Regulation (EC) No 1222/2009.

TS9. Speed limiter

The vehicle shall be equipped with a speed limiting device.

Verification:

The tenderer shall provide the technical sheet of the vehicle where this information is stated.

Award criteria

AC5. Traffic information and route optimisation

Points will be awarded to those vehicles equipped with Traffic information and route optimisation systems meant to interact with the driver providing pre-trip information services to help avoiding congestion and make other journey choices to optimise the trip route. The system shall be an embedded system, meaning a complete communication module, consisting of a modem and a Subscriber Identity Module (SIM), permanently integrated into the car

Verification:

The tenderer shall provide the technical sheet of the vehicle where this information is stated.

AC6. Speed limiter

Points will be awarded to those vehicles equipped with a speed limiting device.

Verification:

The tenderer shall present the technical sheet of the vehicle where this information is stated

3.2.3.3 Consequences

In general, many of the fuel reducing measures are available on the market at low or no additional cost (see the section 3.5.2 of Preliminary report). In most cases the investment is very limited and will result in annual fuel savings for the public authority. In case of higher investment cost, these costs are easily compensated by the fuel savings reached as direct consequence of the application of these measures. In terms of compliance, the technical sheet of the vehicle is in most cases sufficient to prove compliance, and there are therefore no increased administrative burdens compared to the earlier version of the criteria.

3.2.3.4 Consultation questions

- To what extent can these measures be seen as core criteria and to what extent these measures should be classified as technical specifications rather than award criteria.
- Do you agree with GWP limits of air conditioning gases? What market impacts can be expected?
- Do you agree with new criteria proposed?

3.2.4 Noise emissions

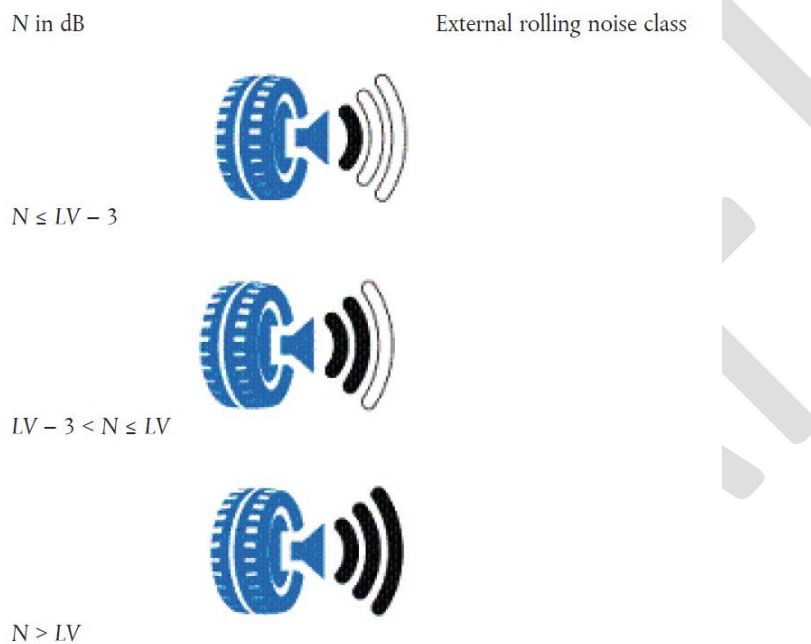
3.2.4.1 Rationale

Vehicle noise can have significant negative impacts on the health of residents, especially in case of traffic in or nearby residential areas. The market should therefore gradually reduce the noise levels of both the tyres and vehicle.

Tyre noise

According to section 3.5.5 of the Preliminary Report vehicle tyre noise is regulated by Regulation (EC) No 661/2009 and the labelling Regulation (EC) No 1222/2009, which obliges the tyre manufacturer to inform the customer about the external rolling noise class as follows:

Figure 1: External rolling noise classes (LV = Limit Values)



Since currently all tyres have to comply with the limits set by Regulation (EC) No 661/2009, only the top category of the labelling Regulation ($N \leq LV - 3$) can provide an additional incentive. In Table 2 the limits values for C1 tyres according to Regulation (EC) No 611/2009 are listed. The proposed limits that are 3 dB below the limit values are presented in the last column. Compliance with these limits will mean the tyres fall within the best performing class of labelling Regulation (EC) No 1222/2009.

Table 2: Limit values for C1 tyres according to Regulation 611/2009 and proposed limits

Tyre class	Nominal width (mm)	section	Limit (dB(A))	values	Proposed (dB(A))	limit
C1A	≤185		70		67	
C1B	>185 ≤215		71		68	
C1C	>215 ≤245		71		68	
C1D	>245 ≤275		72		69	
C1E	>275		74		71	

The criterion is proposed to be a TS at comprehensive level and an award criterion at core level.

Vehicle noise

As described in the Preliminary Report (see section 3.5.4 of the Preliminary report), the Directive 2007/46/EC, which was included in the previous version of the EU GPP criteria, has been amended by Regulation (EU) No 540/2014, which will introduce stricter emissions limits for vehicle noise in three phases:

- Phase 1 applicable for new vehicle types from 1 July 2016;
- Phase 2 applicable for new vehicle type from 1 July 2020 and for first registration from 1 July 2022;
- Phase 3 applicable for new vehicle type from 1 July 2024 and for first registration from 1 July 2026.

So Phase 1 is already in force, but only for new vehicle types and not for all new sold vehicles. However, Phase 1 is already achieved by 90% of the vehicles on the market. In order to promote stricter noise emissions levels the award criteria proposed should be Phase 3 at core and comprehensive levels.

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3.2.4.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specifications	
	<p>TS10. Tyre noise</p> <p>The vehicles shall be equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test reports of the tyres where the external rolling noise emissions are stated.</p>
Award criteria	
<p>AC7. Tyre noise</p> <p>Points will be awarded to those vehicles equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test reports of the tyres where the external rolling noise emissions are stated,</p>	
<p>AC8. Vehicle noise</p> <p>Noise emissions in line with the Phase 3 limits of Regulation (EC) No 540/2014.</p> <p>The noise emissions will be tested according to the Annex II of Regulation (EU) No 540/2014.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet or the test report where the noise emissions are stated.</p>	

3.2.4.3 Consequences

The adjustments will probably have limited consequences, because the revision mainly implies an update of the criterion to current market developments. Verification effort will remain the same.

3.2.4.4 Consultation questions

- Do you agree with the ambition level proposed for both core and comprehensive levels?

3.2.5 Car manufacturing

3.2.5.1 Rationale

The use phase dominates the environmental impact of the life cycle of vehicles; however the manufacturing phase is also relevant. In case of vehicles whose use phase emissions are strongly reduced, the manufacture can become the most relevant stage.

Although it is difficult to propose EU GPP criteria on the manufacturing process due to barriers to verification by the public procurer, there are some options that can be considered.

Vehicle materials

The current EU GPP criteria set includes an award criterion to promote the recycled and renewable materials which is still deemed relevant. Cars are complex products based on a large variety of different raw materials. Besides steel and non-ferrous metals, polymers, glass and trace amounts of other substances are used. The main role is played by the right combination of steel, aluminium and plastics of the car body that reduces its weight while meeting other important characteristics such as resistance (crash relevant), comfort, and safety. The reduction of the car weight is very important for reducing the fuel consumption and the related emissions in the use phase (the most relevant phase for reducing the environmental impacts of a conventional vehicle).

So in the last years, the focus was to substitute the steel with light materials such as aluminium and polymers. Aluminium and some thermoplastics (PA66) have CO₂e emission per kg 3-4 times higher than steel. This means that the environmental improvement in the use phase derived from light-weighting materials could be voided by an increase of the impacts in the manufacturing phase due to the substitution of steel by those materials. That is why measures have been applied to substitute primary aluminium with secondary one in those components which are not crash relevant (recycled aluminium has 2-3 CO₂e per kg, a value comparable with steel).

Another important measure is the substitution of thermoplastics with recycled or renewable materials (see section 3.5.2 of the Preliminary report). In this case, the objective is reducing the use of non-renewable resources. One of the most widespread measures is the use of recycled thermoplastic. The replacement of thermoplastics with renewable materials can bring other issues related to food competition and land use change impacts, similar to biofuels, and car manufacturers are reluctant to take such risks. Besides, the mechanisms to verify the sustainability of these renewable materials are uncertain and thus, the implementation within a public procurement process raises many difficulties of wording and verification.

Therefore, the criterion is proposed to be revised to cover only recycled materials: secondary aluminium and recycled thermoplastics. The verification raised some issues as well, but it could be supported by third party verification, such as a Type I Ecolabel or a certified Life Cycle Assessment. LCA is currently used in a lot of manufacturing companies (Mercedes-Benz, 2014; BMW Group, 2015) as assessing and supporting decision-making tool. It is often used at the beginning of development of a new model to assess its own environmental impacts and improving them compared to the old model of the same product line (BMW Group, 2014; Nissan Motor, 2016). Therefore, it could be used as a proof of compliance.

Lubricants

The current criteria set includes some requirements on lubricants which are not related to the ability of the lubricant to reduce the fuel consumption of the vehicle (see section 3.2.3), but with other life cycle stages of the lubricant itself. This is because the current criterion is partially based on the current EU Ecolabel of Lubricants (Commission Decision 2011/381/EU).

The current EU Ecolabel for lubricants covers different categories of products, and it focuses on the ones that are totally released to the environment during their use phase, or that are highly likely to be emitted to water and soil (so call loss and high risk lubricants). With this approach, the scope does not cover four-stroke oils, but two-stroke oils, which are mixed with the fuel, and therefore, emitted in the exhaust gases. According to the Background report for the current EU Ecolabel for lubricants (IVAM, 2004), 30% of the mixture of fuel and lubricant ends up in the environment. Two-stroke engines are no longer used in vehicles in the EU and US markets, due to the air emissions standards. The scope of the EU Ecolabel for lubricants also includes hydraulic fluids and greases, which are very relevant for the product categories within the scope of EU GPP. Table 3 shows the requirements on the current EU GPP criteria set, and the proposal for revision.

Table 3: Lubricants requirements within the current EU GPP criteria set, and the proposal for revision.

Current EU GPP criteria	Is it part of EU Ecolabel criteria set for lubricants?	Proposal for revision
a. Vehicles must use low viscosity engine lubricant oils (LVL) or regenerated lubricant oils, with a minimum of 25% regenerated base oils, in vehicle maintenance. LVL are those corresponding to SAE grade number 0W30 or 5W30 or equivalent 3.	NO	This criterion related to LVL is relevant to improve the engine performance. According to the Preliminary report, the use of LVL is a cost effective option. Regarding regenerated oils, they might be part of the scope of the revised EU Ecolabel for lubricants. The recycling of oils is a waste treatment practice that can reduce the use of raw materials in mineral oils, and it is in line with the principles of Circular Economy.
b. Hydraulic fluids and greases should have no Health or Environmental Hazard statement or R-phrase at the time of application (Lowest classification limit in Regulation (EC) No. 1272/2008 or Council Directive 99/45/EC).	YES	It is proposed to be kept, as both products are part of the EU Ecolabel scope and they are considered high risk and loss products.
c. No derogation from the exclusion in Article 6(6) of Regulation (EC) No. 66/2010 may be given concerning substances identified as substances of very high concern and included in the list foreseen in Article 59 of Regulation (EC) No. 1907/2006, when present in mixtures, in concentrations higher than 0.010% (w/w).	YES	This is a provision of the EU Ecolabel Regulation about derogation requests for certain hazardous substances. It is proposed to be removed.
d. Carbon content should be $\geq 45\%$ derived from renewable raw materials.	yes	Synthetic plant based lubricants are common in the automotive industry; however, this criterion comes from the EU Ecolabel for lubricants which does not cover automotive oils. It is proposed to be removed due to the same concerns raised

		by the renewable materials used in the vehicle manufacturing. However, it will be further updated if needed according to the outcomes of the EU Ecolabel revision process.
e. The cumulative mass percentage of substances present that are both nonbiodegradable and bioaccumulative shall not be more than 0.1% (w/w).	yes	In the automotive sector, this criterion would be relevant just for hydraulic fluids and greases. It is proposed to follow the ongoing revision of the EU Ecolabel criteria.

The revision process of the current EU Ecolabel criteria for lubricants is ongoing, and the possibility to span the scope to lubricants used in the automotive industry is being explored. It is therefore proposed to follow this revision process to update the criterion of lubricants accordingly.

3.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Award Criteria	
<p>AC9. Vehicle materials</p> <p>Points will be awarded based on the percentage by weight of</p> <ul style="list-style-type: none"> - Secondary aluminum - Recycled thermoplastic <p>Verification:</p> <p>The tenderer shall provide the technical sheet of the material and/comment where the information on the process production and origin of the source must be described. The percentage of recycled materials claimed shall be third party verified.</p> <p>Products carrying a relevant Type I Ecolabel fulfilling the criterion will be deemed to comply. Other appropriate means of proof will be the technical dossier from an independent body or a third party certified LCA</p>	
<p>AC10 Lubricant oils, hydraulic fluids and grease</p> <p>Points will be awarded to those vehicles that are able to use:</p> <ul style="list-style-type: none"> - Regenerated lubricant oils - Hydraulic fluids and greases that have no Health or Environmental Hazard statement or R-phrase at the time of application (Lowest classification limit in Regulation (EC) No. 1272/2008 or Council Directive 99/45/EC). <p>Verification: The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended.</p>	

3.2.5.3 Consequences

The vehicle material criterion is better defined to incorporate materials that are currently used by the car manufacturers.

3.2.5.4 Consultation questions

- Do you agree on the revision of the vehicle materials criterion?
- Do you think the verification proposed is feasible?

3.2.6 Durability and reuse of the battery

3.2.6.1 Rationale

The LCA literature review (see Annex B of the Preliminary report) shows that results are sensitive to assumptions regarding battery replacement ratios. One of the authors carried out a sensitivity analysis on the life of the lithium ion battery which showed that if the battery lifetime range were to increase so that only 1 battery was needed during the car lifetime instead of 1.5, (so no replacement was needed), the BEV would become 6.57% more energy efficient and produce 8.47% fewer emissions. The author also highlighted that this scenario is likely since the battery technology used in BEVs is constantly evolving and becoming more efficient. This is also supported by the data provided by one stakeholder, a public procurer. VW, BMW and Renault offer 96 months of warranty, while KIA offers 84 months. Therefore, a criterion on warranty of the battery is proposed in order to reward those brands improving the lifetime of batteries. A warranty of 60 months could be deemed as a basic threshold for all batteries.

On the disposal of the battery, some authors pointed out that batteries still retain some capacity at the end-of-life and thus can be reused on other applications, such as stationary energy storage, where the requirements are more flexible. This suggests that a part of the manufacturing emissions should be ascribed to the second-life application, which consequently lowers overall GHG emissions of an EV.

3.2.6.2 Proposed criterion

Core criteria	Comprehensive criteria
Technical specification (only applicable if the battery is purchased)	
<p>TS11 Minimum warranty The tenderer shall provide a minimum warranty of the battery of 60 months or 100 000 km against capacity loss below 70%.</p> <p>Verification: The tenderers shall declare that they will provide a warranty for at least 60 months. .</p>	<p>TS11 Minimum warranty The tenderer shall provide a minimum warranty of the battery of 90 months or 150 000 km against capacity loss below 70%.</p> <p>Verification: The tenderers shall declare that they will provide a warranty for at least 90 months. .</p>
Award criteria	
<p>AC11 Extended warranty Points will be awarded to those tenders offering an extension of the warranty of the minimum set by the TS.</p> <p>Verification: Same as TS</p>	
<p>AC12. Reuse of the battery Points will be awarded to those tenderers offering a take-back system to collect the EV batteries that are no longer suitable for vehicles, and to reuse them for other purposes that require lower performance of the battery.</p> <p>Verification: The tenderer shall present a description of the take-back system and the agreements with the users of the reused batteries.</p>	

3.2.6.3 Consequences

The inclusion of criteria on the warranty of the battery is meant to improve the durability of the battery lifetime, which has been found to be one of the main hotspot of electric vehicles. At the same time, the criteria on warranty also help the electric vehicles to be perceived as a reliable technology, since the purchase decision is sometimes hindered by

the conception of electric vehicles' not being a technology mature enough. In the case of reuse of the batteries, the verification might entail some issues, but the environmental benefit is worth it.

3.2.6.4 Consultation questions

- What lifetime/mileage would provide an incentive to the market?
- Could you share information about systems to reuse EV batteries in place?

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3.2.7 Waste disposal

3.2.7.1 Rationale

The requirements on waste fractions and tyres and on wash bays are quite relevant, but they are already mandatory. It is therefore proposed to withdraw these criteria since they cannot bring any added value to the minimum legal requirements. This would apply to all categories.

3.2.7.2 Proposed criteria

The criteria will be deleted.

3.2.7.3 Consequences

Because these criteria include all legal requirements, their deletion will not impact current practices in a negative way. The administrative efforts will be lower since verification will no longer be required.

3.2.7.4 Consultation questions

N.A.

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4 CATEGORY 2: MOBILITY SERVICES

4.1 Overview of the new EU GPP criteria

In the case of purchasing mobility services, various types of measures exist for improving the environmental performance. First of all, the whole criteria set proposed for Category 1 as presented in the previous section could be potentially requested when purchasing services. However, an approach based on fleet composition is needed to make these criteria feasible and workable for services. In addition, several other criteria would only apply to services. These are discussed below.

		Mobility services		
		Proposed criterion	Core	Compr
SC	1	Staff training on ecodriving and environmental management	X	X
	1	Emission reduction plan and GHG emissions monitoring	X	X
TECHNICAL SPECIFICATIONS	2	GHG emissions	X	X
	3	Exhaust gas emissions	X	X
	4	Vehicle specific eco-driving information	X	X
	5	Gear shift indicators (GSI)	X	X
	6	Tyre Pressure Monitoring Systems (TPMS)	X	X
	7	Energy consumption displays	X	X
	8	Lubricant oils	X	X
	9	Vehicle tyres – rolling resistance	X	X
	10	Speed limiter		X
	11	Vehicle tyres – noise		X
	12	Minimum warranty of the battery	X	X
	AWARD CRITERIA	1	Lower GHG emissions	X
2		Exhaust gas emissions	X	X
3		Zero tailpipe emission capability	X	
4		Traffic information and route optimisation	X	X
5		Air conditioning gases	X	X
6		Speed limiter	X	
7		Tyre noise	X	
8		Vehicle noise	X	X
9		Vehicle materials	X	X
10		Lubricant oils, hydraulic fluids and grease	X	X
11		Extended warranty	X	X
12		Reuse of the battery	X	X
13		Combined mobility services	X	X
CPC	1	Staff training on ecodriving and environmental management	X	X
	2	Emission reduction plan and GHG emissions monitoring	X	X

4.2 Criteria proposal

4.2.1 Optimized vehicle use

4.2.1.1 Rationale

Fuel consumption reduction in the usage phase can be limited by technical on-board devices, but also by optimizing vehicle use by stimulating eco-driving and by a critical examination of the services to be carried out in terms of vehicles used and kilometres driven. The proposed criteria cover eco-driving measures, which include proper feedback to drivers and incentives to reduce fuel consumption and an emission reduction plan and GHG emissions monitoring (providing insight in the overall WTW GHG emissions of the services) to monitor and improve the overall impact of the service and to guarantee continuous improvement.

4.2.1.2 Proposed criteria

Core criteria	Comprehensive criteria
Selection criteria	
<p>SC1. Staff training on ecodriving and environmental management</p> <p>Tenderers shall have in place a training program, including formal written procedures, ensuring that relevant staff is sufficiently trained to provide the service according to the environmental provisions included in the tender.</p> <p>The management staff involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - Be trained to identify and evaluate the available technologies and measures to reduce the WTW GHG emissions and air pollutants emissions - be trained in the monitoring and reporting procedures of the WTW GHG emissions <p>All drivers involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - be trained in a recognised institution on environmentally-conscious driving on a regular basis to increase fuel efficiency; - receive regularly information on their fuel efficiency performance (at least once per month). <p>Adequate training, with a minimum duration of 16 hours, shall be provided to all new staff working under the contract within four weeks of starting employment and an update on the above points, with a minimum duration of 8 hours, for all other staff at least once a year.</p> <p>Verification:</p> <p>The tenderer shall present records of these training measures.</p>	
Contract performance clause	
<p>CPC1. Staff training</p> <p>The service provider shall document and report yearly the amount (hours) and subject of training provided to each member of staff working on the contract to the contracting authority.</p> <p>The yearly staff training records shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.</p>	
Technical specification	
<p>TS1. Emission reduction plan and GHG emissions monitoring</p> <p>The tenderer shall provide an emission reduction plan with measures aimed at reducing the WTW GHG emissions and air pollutants emissions during the contract period. They will also provide the procedures to monitor and report progress of these measures and their impacts. The indicator</p>	

used shall be GHG emissions of the service (applying a WTW approach), both in total per year and per passenger-kilometer or another unit that reflects the performance of the service.

Verification: The tenderer will present the emission reduction plan and the GHG emissions monitoring and reporting procedure applying a WTW approach.

Contract performance clause

CPC2. Emission reduction plan and GHG emissions monitoring

The contractor shall implement the measures included in the emission reduction plan and monitor and report the WTW GHG emissions according to the procedure presented in their offer.

The contractor will keep records which shall be made available to the contracting authority. The contracting authority shall foresee rules for penalties for non-compliance.

4.2.1.3 Consequences

This type of optimization might require additional work for the operator, because it will affect its daily business and procedures, especially in terms of administrative efforts required. However, having these measures in place can also result in significant fuel consumption reductions and thus lower fuel cost.

4.2.1.4 Consultation questions

- Do you agree with the training proposed for both management staff and drivers?
- Do you find suitable the training hours proposed?

4.2.2 GHG emissions

4.2.2.1 Rationale

In terms of alternative fuels Eurostat statistics show that the share of alternative fuels in cars is still very limited (5%), and the market is dominated by diesel and petrol engines. For LCV, the share is even lower (1%) and the most of the fleet is composed by diesel engines.

In the case of L- vehicles, the criteria proposal is focused on powered two-wheelers (PTW) which cover mopeds (L1e) and motorcycles (L3e). Electric PTWs still account for only 0.3% of the market; however they experienced a 60% surge in purchases between 2009 and 2010, and a similar growth in 2011.

Setting a minimum requirement on CO₂ emissions based on the TS1 of category 1 might entail an increase of the replacement rate, and therefore a larger investment. The average age of fleet has been increasing the last year to reach 40% of cars above 10 years and 10% below 2 years. However, these figures cover both private and professional fleets, and the vehicles used in the category of mobility services tend to be younger, due to larger annual mileage and consequent higher replacement rates, and to meet their clients' demands as well. Besides, some companies are specialised in specific models: premium, hybrid, electric, etc. In Brussels, the car sharing company Zen Car offers 20 electric cars and 40 pick-up/drop-off points (BBL Belgium; et al, 2011).

In the case of car sharing, the average age of vehicles is also much lower than that of private cars in Germany. For instance, total CO₂ emissions of German Car-Sharing cars are about 16% below those of all newly-registered German cars. In 2007, the fleet of the Bremen-based Car-Sharing operator Cambio had average emissions of 129 g of CO₂/km – in comparison to the 169 g of CO₂/km average of new private cars in Germany. According to their website, Cambio's fleet is no older than 4 years (Cambio carsharing , 2016). Figure 2 shows these data for different car sharing companies (BBL Belgium; et al, 2011):

Figure 2: Comparison of specific CO₂ emissions of car-sharing fleets with personal cars by country (BBL Belgium; et al, 2011)

C-S provider or country	Specific CO ₂ emissions of C-S fleet	Number of vehicles in C-S fleet	specific CO ₂ emissions of the national vehicle fleet	...% lower consumption	Comparison year	Source
Mobility, Switzerland	151 g/km	2,200	183 g/km (new cars only)	17.5% (total 1,510 t in year)	2008	Mobility 2009
various, Germany	148 g/km	1,042 (included in the study)	176 g/km (new cars only)	16%	2003	Knie, Canzler 2005
cambio, Germany	129 g/km	575	165 g/km (new cars only)	21.2%	2009	cambio Journal 19/2009; German Federal Bureau of Statistics 2009
cambio Belgium, Belgium	117 g/km (Flanders) 120 g/km (Brussels) 122 g/km Wallonia	248	155 g/km (new cars only)	21.3% - 24.5%	2008	Information by e-mail, Taxistop
4 providers, Italy	127 g/km	236			2008	momo survey
various, Great Britain	110 g/km		171 g/km (assuming the replacement of personal cars after 6 years)	36%	2007 (2001 in some cases)	Carplus 2007

It is therefore apparent that mobility services tend to use better performing cars than the average fleets. Some of them even offer the top models, for example, in Germany one of latest model of cambio cars in 2010 (Ford Fiesta ECONetic) emitted only 98 g of CO₂/km (BBL Belgium; et al, 2011).

This information shows that the replacement rate of a fleet could range between 12.5% (average age 8 years) and 25% (average age 4 years).

Based on these facts, it seems feasible to set a share of top-10 of the most fuel efficient ICEVs as defined in the core TS1 of category 1 to mobility services. It is proposed that 12% of the fleet complies with the core TS1 for category 1 at core level, and 25% at comprehensive level. The comprehensive TS of category 1 is proposed as part of the comprehensive technical specification.

4.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical specification	
<p>TS2. GHG emissions Cars and LCVs 12% of the fleet to be used under the contract shall be vehicles that comply with the core TS1 of Category 1.</p> <p>L-category vehicles 12% of the fleet shall be electric vehicles.</p> <p>Verification: same as TS1 of Category 1 together with the list and technical sheets of the whole fleet.</p>	<p>TS2. GHG emissions Cars and LCV 12% of the fleet to be used under the contract shall be vehicles that comply with the comprehensive TS1 of Category 1 25% of the fleet shall be vehicles that comply with the core TS1 of Category 1.</p> <p>L-category vehicles 25% of the fleet shall be electric vehicles.</p> <p>Verification: same as TS1 of Category 1 together with the list and technical sheets of the whole fleet.</p>
Award criteria	
<p>AC1. Lower GHG Emissions Points will be awarded to those tenders offering a higher percentage than the one set by the TS2 for the fleet to be used under the contract, in proportion to the excess over the TS2.</p> <p>Verification: see TS2</p>	

4.2.2.3 Consequences

The suggested changes might entail an increase of the replacement rate of the fleet and it will require the purchase of more expensive vehicles.

4.2.2.4 Consultation questions

- Do you think it is feasible to set minimum requirements on the fleet composition to ensure a proportion of low WTW GHG emissions vehicles?
- Do you agree with the percentages proposed?

4.2.3 Air polluting emissions

4.2.3.1 Rationale

For cars and LCV, the share of the total fleet in 2015 of EURO 6 was 15%, and around 55% lower than EURO 5, which means 30% EURO 5 (see section 3.2.1 of the Preliminary report).

In the case of L-category vehicles, the shares of moped and motorcycles complying with EURO III in 2011 were 65% and 60% respectively (see section 3.2.1 of the Preliminary report).

There are also data available from a JRC study (Clairotte, Zardini, Haq, & Martini, 2015) in the framework of the Regulation 168/2013, which includes representative data of products placed on the EU market based on data available between September 2014 and June 2015. According to this study, less than 1% of mopeds and motorcycles complied with Euro 5, and 63% of mopeds and 8% of motorcycles complied with Euro 4. Note that the enforcement timing of Euro standards for L-category vehicles according to Regulation 168/2013 is the following:

	L-vehicle	New types of vehicles	Existing types of vehicles
Euro 4	L1e, L2e, L6e	1 January 2017	1 January 2018
	L3e, L4e, L5e, L7e	1 January 2016	1 January 2017
Euro 5	L1e-L7e	1 January 2020	1 January 2021

Setting a minimum proportion of EURO 6 and EURO 5 might entail an increase of the replacement rate, and therefore a larger investment. Only 10% of the fleet is below 2 years. However, and as said before, the average age of professional fleets are usually lower than the private ones.

Based on these facts, and given the market induced replacement of cars, a minimum percentage of 40% is proposed for core and 60% for comprehensive level. It is also proposed a percentage of vehicles complying with Euro 6d-TEMP standard, to incentivise the penetration of the Euro 6d stage. This is also an indirect way to require a maximum age of the fleet, due to the timings of EURO standards enforcement. It would be also advisable to set a maximum age of the fleet instead, which would allow a dynamic updating of the criterion to the future EURO standards developments. As mentioned above, Cambio's fleet is no older than 4 years (Cambio carsharing , 2016).

An award criterion for zero emissions vehicles is proposed in line with the category 1.

4.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Air polluting emissions</p> <p>Option 1 All cars and LCV used in carrying out the service shall meet at least EURO 5. 40% of cars and LCV shall meet at least EURO 6.</p> <p>All L-category vehicles used in carrying out the service shall meet at least EURO 3. 25% L-category vehicles shall meet EURO 4.</p> <p>Option 2 The vehicles shall not be older than 4 years</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles to be used in carrying out the service where emission standards are defined.</p>	<p>TS3. Air polluting emissions</p> <p>Option1 All cars and LCV used in carrying out the service shall meet meeting at least EURO 5. 60% of cars and LCV shall meet at least EURO 6.</p> <p>10% of cars and LCV shall meet at least the Euro 6d-TEMP standard.</p> <p>All L-category vehicles used in carrying out the service shall meet at least EURO 3. 50% L-category vehicles shall meet EURO 4.</p> <p>Option 2 The vehicles shall not be older than 2 years</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles to be used in carrying out the service where emission standards are defined.</p>
Award Criteria	
<p>AC2. Air polluting emissions</p> <p>Points will be awarded to those tenders offering a higher percentage than the one set by the TS3 for the fleet to be used under the contract, in proportion to the excess over the TS3.</p> <p>Verification: See above TS3</p>	
<p>AC3. Zero emission capability</p> <p>Points will be awarded to tenders offering a service fleet with at least 12% of vehicles that can demonstrate at least 40 km of zero tailpipe emission capability, in proportion to the excess over this threshold.</p> <p><i>Note: this criterion would be only relevant as core criterion and not as comprehensive, since the comprehensive GHG emissions technical specification already selects zero emission capable technologies.</i></p> <p>Verification: The tenderer shall present the specifications of the service fleet</p>	

4.2.3.3 Consequences

The suggested changes might entail an increase of the replacement rate, and therefore a larger investment.

4.2.3.4 Consultation questions

- Do you think it is feasible to set minimum requirements on the fleet composition to ensure a proportion of EURO 6 and minimum EURO 5 compliance for the fleet?

- Do you agree with the percentages proposed? Are they suitable for fleets used in mobility services such as car-sharing?
- Do you think the option based on the fleet age is more appropriate? In this case, which thresholds do you recommend?

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4.2.4 Technical measures to reduce GHG and noise emissions, vehicle-manufacturing and battery related measures

4.2.4.1 Rationale

In general, many of the fuel and noise reducing measures described sections 3.2.3 and 3.2.4 are available on the market at low or no additional cost. In case of higher investment cost, this cost is easily compensated by the fuel savings reached as direct consequence of the application of these measures, or the criterion is proposed to be an award criterion.

For the vehicle-manufacturing measures (section 3.2.5) they could be requested to the service fleet, awarding points based on the proportion of fleet complying with the award criteria.

In the case of EV battery related measures (section 3.2.6), they could also be requested to the electric vehicles included in the offer.

However, the verification process could turn into a burdensome task, since all the criteria should be verified for all vehicles of the fleet to be used under the contract.

Therefore, it is proposed that the public procurer can choose which criteria to request from the Category 1, adapted to the service, the fleet dimensions, the duration of the contract, etc.

4.2.4.2 Consequences

Consequences will be limited as result of the lower cost and relative short payback time. However, additional administrative burdens may be expected due to the verification of the criteria for the entire fleet.

4.2.4.3 Consultation questions

- Do you agree on the proposal to apply these sets of criteria based on the needs of the service?

4.2.5 Combined mobility services

4.2.5.1 Rationale

The combined mobility services (CMS) offer a wide range of combined mobility options which might include public transport and bikes renting. This could be used as a way to promote the modal shift towards non-motorised and public means of transport.

As key feature, the mobility service should be capable to meet a particular travel demand of its client using the most appropriate and efficient transport mode, or combination of modes. To this end, the mobility service should be able to provide, as much as possible, ad hoc solutions to each mobility need requested by the client, which should factor in the travel distance, the number of travellers, the purpose of the trip, the available infrastructures, etc. When case-by-case analysis is not feasible, the mobility packages for different types of travels are an option currently offered by some mobility service companies.

In some situations, the public procurer might have a staff travel plan in place, for which a provider of mobility services is required, and obviously the service shall be adapted to the plan's provisions. The EU GPP criteria for office buildings (European Commission, 2016) include a criterion on staff travel plan and infrastructure, which is worded as follows:

A staff travel plan shall be developed for the building in consultation with the contracting authority, the local planning authority and relevant infrastructure providers. The plan shall identify specific measures that, taking into account the local context, may reduce the need for commuting to the building by private car and promote the use of more sustainable modes of transport, to include cycling and walking, public transport, low emissions vehicles, and car sharing.

As a minimum, space and infrastructure for the following modes of transport shall be integrated into the design of the building:

- *electric vehicles: Dedicated parking spaces together with associated electric recharging points;*
- *bicycle storage: Secure, covered and easily accessible bicycle storage with e-bike re-charging points.*

In some cities, this type of staff travel plans or company mobility plans are mandatory for big companies, for example, in Brussels it is mandatory for all companies with more than 200 employees since 2004 (City of Brussels).

The mobility solutions should be optimised to reduce the ratio energy consumed per distance and travel, and this is the result of prioritising the non-motorised vehicles and public transport modes. Therefore, the level of multi and intermodality is a crucial element to meet the travel demand in the most efficient way. Besides, Holmberg et al. (Holmberg, Collado, Sarasini, & Williander, 2016) highlight that the environmental improvement that might be derived from the mobility services relies on the assumption that the primary customer group is the car-user, and not the public transport everyday user. This will result in a modal shift towards public transport, and not the other way around. The intermodality, referring to the seamless use of several different modes in one trip chain, is therefore a key element to ensure the environmental improvement from mobility services. The level of multi and intermodality of the mobility service could be defined as the different types of transport modes that the service is able to offer, and its combinations in one travel. By transport modes is meant: private cars, L-category vehicles, electric bikes, bikes, public transport, ride sharing, etc. The tenderer may need to create a partnership with other suppliers, public transport operators and other fleet operators, as it is the common Figure 3.

Figure 3: Summary of Integrated Mobility Services around the World (Kamargianni, Matyas, Li, & Schäfer, 2015)

Name	Place	Integrator	Integration level**						Modes included
			1	2	3	4	5	6	
Communauto + BIXI + Public transport + local Taxi	Canada	Communauto (car sharing)	X						
SBB + Mobilty +Publibike/Quic kbike	Switzerland	SBB (rail)	X						
STIB+Cambio	Brussels, Belgium	Cambio (car sharing)	X	X					
Hannovermobil	Hannover, Germany	Üstra (public transport)	X	X	X*	X			
EMMA	Montpellier, France	TAM (public transport)	X*	X	X	X	X*		
Smile	Vienna, Austria			X	X	X			
Moovel	Germany	Moovel (application)		X	X*	X			
SHIFT	Los Angeles, USA	SHIFT (all modes)		X	X	X	X	X	
UbiGo	Gothenburg, Sweden	CLOSER, Lindholmen Science Park AB (research)		X	X	X		X	
Helsinki Model	Helsinki, Finland			X	X	X		X	 + on demand transport

* Partial integration
 **1:Cooperation only in terms of providing discounts for combined subscriptions
 2: Ticketing integration
 3: Payment integration
 4: ICT integration
 5: Institutional integration
 6: Mobility packages

The combined mobility services are still in a very early stage of development. In the Nordic countries, UbiGo was the pioneer project developed in Goteborg during 2014, offering a range of mobility options to users based on subscription and unified invoicing. (Kamargianni, Matyas, Li, & Schäfer, 2015), (Holmberg, Collado, Sarasini, & Williander, 2016). Therefore, it is considered more suitable to be promoted by means of award criteria. Nevertheless, the potential of this type of services to promote the modal shift is very relevant, and it is advisable for public procurers to explore the possibility of procuring combined mobility services, instead of other mobility services that do not offer intermodality.

4.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Award criteria	
<p>AC14. Combined mobility services</p> <p>Option 1: Points will be awarded to those tenders that provide ad hoc solutions to each mobility need requested within the distance specified in the call for tender, taking into account the travel distance, the number of travelers, the purpose of the trip, the available infrastructures, and any other circumstance relevant to optimize the mobility solution.</p> <p>Option 2: Points will be awarded to those tenders that provide mobility packages adapted to the different travel categories included in the call for tender.</p> <p>Both options:</p> <ol style="list-style-type: none">1) The tenderer shall ensure the prioritization of the non-motorised vehicles and public transport modes in the planning of the mobility solutions.2) The tenderer shall offer a sufficient level of multi and intermodality to ensure 1). This will include bikes, e-bikes, public transport, ride-sharing, car sharing, taxi services, L-category vehicles. <p>If part of the call for tender, the tenderer shall fulfil the provisions of the staff travel plan.</p> <p>Verification:</p> <p>Option 1: the tenderer shall present a description of the planning and decision-making process to optimise the ad hoc solutions to different travel scenarios.</p> <p>Option 2: the tenderer shall present a description of the mobility packages offered.</p> <p>Both options: The tenderer will present the contracts of the different suppliers and the partnership agreements with public transport operators and other fleet operators.</p>	

4.2.5.3 Consequences

Mobility services are incentivised to develop measures aimed at modal shift.

4.2.5.4 Consultation questions

- Do you agree with the definition of this product group?
- Do you agree with the approach for stimulating the modal shift?

5 CATEGORY 3: PURCHASE OR LEASE OF BUSES

5.1 Overview of the revision of the EU GPP criteria

The tables below show a summary of the revision proposal for the current EU GPP criteria of the category 'purchase and lease of buses'. The proposal is further described in the following sections

Purchase/lease of buses					
		Criterion	Core	Compr	revision
SPECIFICATI	1	Exhaust gas emissions	X	X	discarded
	2	Exhaust pipes (location)	---	X	updated
	3	Lubricant oils	---	X	updated
	4	Tyres	---	X	updated
AWARD CRITERIA	1	Use of alternative fuels	X	X	updated
	2	Noise emission levels	X	X	updated
	3	Exhaust gas emissions	X	---	updated
	3	Tyre Pressure Monitoring Systems (TPMS)	---	X	updated
	4	Air conditioning gases	---	X	updated
	5	Vehicle materials	---	X	updated
6	Start and stop	---	X	discarded	

Purchase/lease of buses				
		Criterion	Core	Compr
TECHNICAL SPECIFICATIONS	1	GHG emissions	X	X
	2	Exhaust pipes (location)	X	X
	3	LVL	X	X
	4	Tyres - rolling resistance	X	X
	5	Tyre Pressure Monitoring Systems (TPMS)	X	X
	6	Tyre noise		X
	7	Minimum warranty of the battery	X	X
AWARD CRITERIA	1	Lower GHG emissions	X	X
	2	Zero tailpipe emission capability	X	X
	3	Air conditioning gases	X	X
	4	Tyre noise	X	
	5	Vehicle noise	X	X
	6	Vehicle materials	X	X
	7	Lubricant oils, hydraulic fluids and grease	X	X
	8	Extended warranty	X	X
	9	Reuse of the battery	X	X

The criterion for exhaust gas emissions (current TS1) is proposed to be deleted in the revised version of EU GPP criteria, because of a lack of an update of the Euro VI emission standard (mandatory for all new buses and trucks) and because a further reduction of air polluting emissions asks for the use of alternative fuels and powertrains, which is already covered by TS1 GHG emissions and AC2 Zero tailpipe emission capability proposed below.

5.2 Criteria proposal

5.2.1 GHG emissions

5.2.1.1 Rationale

The stakeholder consultation suggests that a technology-neutral approach based on GHG emissions could be explored as an option to revise the criterion on alternative fuels. Other views recommended the removal of the criterion arguing that the use of alternative fuels was not a consideration made in the course of purchasing, but part of a public transport authority's wider strategy. However, the EU GPP criteria would still be valid in those cases, as a way to assist the decision-making of the public procurers.

In the case of buses, there is currently a legal gap that hinders an EU-harmonised approach to formulate a CO₂ emissions criterion. Currently, the European Commission has already developed a simulation tool called VECTO (Vehicle Energy Consumption calculation Tool), which is aimed to support the certification, monitoring and reporting of CO₂ emissions from heavy duty vehicles (see section 4.6.2 of the Preliminary report). Five different driving cycles (mission profiles) have been developed and introduced into VECTO for buses and coaches. In the meantime, many stakeholders recommended the use of the UITP (International Association of Public Transport) standards: SORT, SORT for hybrid and SORT-E (for electric buses, which is still on-going), which are especially designed for buses. SORT stands for Standardised on-road test cycles and has been designed by UITP to measure fuel consumption in buses in a comparable way and therefore can be used in a call for tender to compare different buses. It is a real-life test with a full-size bus on a test track and aims to realise a sector-wide single-approach. Nowadays it has been widely recognised and accepted by industry and therefore many bus manufacturers test their vehicles according to the SORT test. This makes the data easily available for procurers.

Another issue to be addressed is the lack of robust and comparable data on energy consumption of buses per km, in contrast to CO₂ labelling scheme for the cars and LCVs. This situation rules out the possibility to set thresholds as it is proposed for cars and LCVs, and alternative solutions need to be explored. The initiative Low Emission Buses of DfT's Office of Low Emission Vehicles (OLEV) sets up a subsidies scheme to help reduce greenhouse gas (GHG) emissions from UK bus fleets and improve air quality. The scheme defines a Low Emission Bus (LEB) as the one producing 15% less Well-to-Wheel (WTW) emissions compared with an equivalent Euro V diesel bus, based on a methodology developed by the LowCVP (LowCVP, 2016). The bus is tested using a test – cycle in a chassis dynamometer and the typical type-approval procedure.

Regarding the WTT emissions, the bus manufacturers have to provide a 'WTT factor' with supporting evidence to show how much GHG emissions are emitted per litre or kWh of fuel that will be used with their bus. If they cannot provide it, a default factor is to be used, coming from national fuel statistics and reports.

The WTW approach proposed by LowCVP is able to evaluate the entire fuel supply chain in terms of GHG emissions, and therefore, the technology-neutrality is fully achieved both for the vehicle and the fuel. However, some stakeholders have advised against the use of too complicated criteria, which can indeed hamper its application in real life. Therefore, in line with the category cars and LCVs, two options are proposed:

- Option 1 technology-neutral approach: the criterion is proposed to be based on the WTW GHG emissions in line to LowCVP scheme, using default WTT factors for the different fuels and energy carriers.

- Option 2 technology-specific approach: the criterion is proposed to promote directly the technologies that have been identified as improvement options in the Preliminary report.

Option 1: technology-neutral approach based WTW GHG emissions indicator

The WTW GHG savings should promote the best technologies currently in the market. The Preliminary report (see sections 4.6.2. and 4.6.3 of the Preliminary report) showed the following options and their potential savings compared to a EURO VI bus (see Table 4):

Table 4: WTW GHG savings and abatement costs for different technologies and powertrains

Technology	WTW CO ₂ savings (compared to EURO VI)	Abatement cost €/kg CO ₂ eq.
CNG and LNG bus	4% (2020 projections)	0.6 (2020 projections)
Hybrid bus	18 – 24%	Maximum 0.4-0.5
Biofuel	50%	0.25 – 0.75
Full Electric Vehicle and Plug-in Hybrid Electric Vehicle	40% - 100%	0.2 – 0.7
Fuel Cell Electric Vehicle	11% - 100%	1 - 16
Biogas from maize	30% - 40%	not available
Biogas from landfill	> 60%	not available

Some of the certificates issued by LowCVP containing the results of these tests are available on their website (LowCVP, 2016). They are shown in Table 5 in order to better assess the minimum percentage reduction that could be part of the criterion proposal.

Table 5: WTW GHG emissions for different bus models (LowCVP website)

	WTW GHG (g CO ₂ e/km)	Reference (g CO ₂ e/km)	% reduction
Model 1: Plug-in Electric Hybrid	611.62	1233.60	50.4%
Model 2: Full electric	437.66	1261.90	65.3%
Model 3: Hybrid	810.01	1271.30	36.3%
Model 4: Full Electric	307.27	998.10	69.2%
Model 5: Biomethane	890.32	1243.00	28.4%
Model 6: Biomethane	764.96	1139.40	32.9%

It is important to note that the baselines used by the literature reviewed in the Preliminary report (see section 4.6.3 of the Preliminary report) and the LowCVP are not the same; the former's is EURO VI diesel bus (meaning a new bus) and the latter's is a

EURO V diesel bus (meaning not a new bus), hence the percentages are not fully comparable. However, the results in the saving potentials are quite similar for the different technologies

The reference bus is crucial to formulate the criterion in Option 1, and based on the market data and the current rolling stock (Section 4.2 of the Preliminary Report), a EURO V bus of the same characteristics than the one under evaluation seems to be a good choice. However, the coming regulations aimed at measuring and reporting CO₂ emissions of heavy duty vehicles will apply to new buses placed in the market, i.e. EURO VI buses, and thus, data of these buses will be available. For this reason, EURO VI diesel as baseline should be also taken into account for discussion.

The results on performance of the buses studied suggest that a threshold of 15% WTW GHG savings will select hybrid buses. Some hybridisation packages are quite costly, but other ones have payback periods up to 1.5 years. This could be affordable for a public procurer as core criterion. A threshold above 24% would choose alternative fuel powertrains and a more complex level of hybridisation, which would suit the comprehensive criterion.

Option 2: technology-specific approach

Option 2 is proposed to select directly those technologies that perform at least 15% lower WTW GHG emissions than a diesel bus, as identified in the Preliminary report (see sections 4.6.2. and 4.6.3). These are the following ones:

- Hybrid bus both diesel and natural gas.
- Full Electric and Plug-in Hybrid Electric bus
- Fuel Cell Electric bus, for specific hydrogen pathways.
- Biogas bus
- Biofuel bus, provided the biofuels comply with the requirements set by the RES Directive

In the case of fuel cell electric buses, the WTW GHG saving potential heavily depends on the pathway to produce the hydrogen. If it is from electrolysis using 100% renewable energy, the savings are ensured. On the contrary, the production of hydrogen by means of natural gas steam reforming raises some doubts: one report (TNO (CIVITAS WIKI), 2013) does not include results that prove a better performance but indicates it is a very promising technology, while another report (Roland Berger, 2015) suggests a saving potential of 10%. It is therefore proposed that fuel cell electric buses are included, but with a provision to promote the use of renewable energy in the form of an award criterion.

Advanced biofuels

Land based biofuels can produce direct and indirect land use change impacts. Sustainability criteria as laid down in the Renewable Energy Directive (2009/28/EC) and in the Fuel Quality Directive (2009/30/EC) prevent the direct displacement of carbon natural storages, but indirect displacement is harder to control and to estimate. Advanced biofuels, such as those made from wastes and algae, provide greenhouse gas emission savings with a low risk of causing indirect land-use change, and do not compete directly for agricultural land for the food and feed markets.

To prepare for the transition towards advanced biofuels and minimise the overall indirect land-use change impacts, Directive (EU) 2015/1513 limits the amount of biofuels and bioliquids produced from cereal and other starch- rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land that can be counted towards targets set out in Directive 2009/28/EC (maximum 7% of the final consumption of energy in transport). This directive also sets reporting obligations about ILUC emissions based provisional mean values. However, the calculation of these emissions is not completely established.

IEA data (IEA, 2012) show that waste and advanced biofuels represent ~2.4 % of the total worldwide biofuels production.

Given that the ILUC emissions are not yet quantifiable and the low market availability of advanced biofuels, it is proposed to promote the use of advanced biofuels by means of an award criterion.

Verification issues

Those technologies that are dependent on the type of fuel require special provisions to ensure compliance.

In the case of biofuels, the tenderer will need to provide their supplier's certificate, issued by one of the voluntary certification schemes approved by the European Commission (<https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes>)

For biogas and renewable hydrogen, the data of the suppliers and the production sites will be needed to demonstrate the source of the fuels.

For all the fuels mentioned above, there should be a dedicated supply system that avoids the mix with non-certified suppliers, in the case of biofuels, and with fossil hydrogen and natural gas for the other two fuels.

The option 1 might entail verification issues related to the cost of fuel consumption tests. One stakeholder stated that SORT test is quite expensive and can hinder the participation of SMEs in the call for tender. This stakeholder suggested a test based on modelling similar to VECTO tool.

Option 1 methodology

For Option 1, the following default WTT GHG emissions factors are proposed:

	WTT (gCO ₂ eq/MJf)	factor	Source
Diesel	88.6		(JEC - Joint Research Centre-EUCAR-CONCAWE collaboration, 2014)
Gasoline	87.1		
LPG	73.7		
CNG EU mix	69.3		
Biodiesel and bioethanol (100%)	41.9		Complying with 50% saving set by RES Directive
Electricity EU mix	107		(COWI; VHK, 2011)
Upgraded biogas from municipal organic waste	14.8		(JEC - Joint Research Centre-EUCAR-CONCAWE collaboration, 2014)
Upgraded biogas from wet manure (closed / open)	-69.9 /-45.2		
Upgraded biogas from maize.	40.8		
Upgraded biogas from double cropping.	26.8		
Hydrogen from Electricity EU mix	141.1		
Hydrogen from NG steam reforming	115.2		
Hydrogen from electrolysis 100% RES	13		

Except for biofuels, the rest of factors are based on the joint work of JRC, EUCAR and Concawe (JEC - Joint Research Centre-EUCAR-CONCAWE collaboration, 2014), which is the most relevant reference in this field. In the case of biofuels, it is proposed to use the default value set by RES Directive as fossil fuel comparator, multiplied by 0.5, in line with the 50% saving requirement that will be in force in January 2017. This way is proposed to prevent any verification issues, since the certificates do not provide the WTW GHG emissions of the biofuel certified. It just certifies that the biofuel complies with the provisions of the RES Directive and lists the input materials used for its production. As explained in section 3.2.1, for electricity it is proposed to use the average carbon intensity over the period 2010 - 2020 recommended by the Methodology for Ecodesign of Energy-related Products (COWI; VHK, 2011).

5.2.1.2 Proposed criteria

Option 1

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS1 GHG emissions</p> <p>The bus shall demonstrate WTW GHG emissions reduction of 15% compared to an equivalent EURO V/VI bus (for discussion).</p> <p>The WTW GHG emissions will be calculated multiplying the energy consumption by the GHG emission factors in Table 4.</p> <p>The contracting authority will set in the call for tender:</p> <ol style="list-style-type: none"> 1) the test method to be used to measure the energy consumption according to recognised and validated standards, and 2) the WTW GHG emissions of the bus to be used as reference.. <p>Verification</p> <p>The tenderer shall present the test report according to the standard, showing the results of energy consumption of the bus offered. The test shall be carried out or witnessed by technical services appointed by the type-approval authority.</p> <p>The tenderer shall present a declaration of the WTW GHG emissions using the method set above.</p> <p>In the case of the use of biofuels, the tenderer shall provide the composition of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission (https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system that avoids the mix with non-certificated</p>	<p>TS1 GHG emissions</p> <p>The bus shall demonstrate WTW GHG emissions reduction of 25%.compared to an equivalent EURO V/VI bus (for discussion).</p> <p>The WTW GHG emissions will be calculated multiplying the energy consumption by the GHG emission factors in Table 4.</p> <p>The contracting authority will set in the call for tender:</p> <ol style="list-style-type: none"> 1) the test method to be used to measure the energy consumption according to recognised and validated standards, and 2) the WTW GHG emissions of the bus to be used as reference. <p>Verification</p> <p>The tenderer shall present the test report according to the standard, showing the results of energy consumption of the bus offered. The test shall be carried out or witnessed by technical services appointed by the type-approval authority.</p> <p>The tenderer shall present a declaration of the WTW GHG emissions using the method set above.</p> <p>In the case of the use of biofuels, the tenderer shall provide the composition of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission (https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system that avoids the mix with non-certificated</p>

suppliers. In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the dedicated supply system. Hydrogen produced with 100% RES electricity shall demonstrate the on-site production of RES electricity.	suppliers. In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the dedicated supply system. Hydrogen produced with 100% RES electricity shall demonstrate the on-site production of RES electricity.
Award criteria	
AC1 Lower GHG emissions	
Points will be awarded to those tenders offering a larger WTW GHG saving than the TS in proportion to the extra saving. In case of 100% biofuel buses, points will be awarded to those tenders that provide the contract(s) with supplier(s) of advanced biofuels, i.e. produced from lignocellulosic feedstocks (i.e. agricultural and forestry residues, e.g. wheat straw/corn stover/bagasse, wood based biomass), non-food crops (i.e. grasses, miscanthus, algae), or industrial waste and residue streams. Verification: same as TS	

Option 2

Core criteria	Comprehensive criteria
Technical Specifications	
<p>TS1 Use of technological improvement options</p> <p>The bus shall be equipped by one of the following technologies demonstrating WTW GHG emissions reduction</p> <ul style="list-style-type: none"> • Hybrid bus both diesel and natural gas. • Full Electric and Plug-in Hybrid Electric bus • Fuel Cell Electric bus, for specific hydrogen pathways. • Biogas bus • 100% Biofuel bus, provided the biofuels comply with the requirements set by the RES Directive <p>Verification:</p> <p>The tenderer shall present the technical sheet of the vehicle where these technical or fuel technology specifications are stated.</p> <p>In the case of the use of biofuels, the tenderer shall provide the percentage of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission</p> <p>(https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system that avoids the mix with non-certificated suppliers.</p> <p>In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical</p>	<p>TS1 Use of technological improvement options</p> <p>The bus shall be equipped by one of the following technologies demonstrating WTW GHG emissions reduction</p> <ul style="list-style-type: none"> • Full Electric and Plug-in Hybrid Electric bus • Fuel Cell Electric bus, for specific hydrogen pathways. • Biogas bus • 100% Biofuel bus, provided the biofuels comply with the requirements set by the RES Directive <p>Verification:</p> <p>The tenderer shall present the technical sheet of the vehicle where these technical or fuel technology specifications are stated.</p> <p>In the case of the use of biofuels, the tenderer shall provide the percentage of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission</p> <p>(https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system that avoids the mix with non-certificated suppliers.</p> <p>In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the</p>

specifications of the production and the dedicated supply system.	dedicated supply system.
Award criteria	
AC1 Use of technological improvement options	
Points will be awarded to those tenders that provide the contract(s) with supplier(s) of: <ul style="list-style-type: none"> • Electricity from 100% renewable electricity • Hydrogen from 100% renewable electricity • Biogas from municipal organic waste or manure. • Advanced biofuels, i.e. produced from lignocellulosic feedstocks (i.e. agricultural and forestry residues, e.g. wheat straw/corn stover/bagasse, wood based biomass), non-food crops (i.e. grasses, miscanthus, algae), or industrial waste and residue streams. 	
Verification: same as TS. 100% RES electricity shall demonstrate the on-site production of RES electricity	

5.2.1.3 Consequences

There are advantages and drawbacks for both options that could influence the practical implementation of the criterion. Option 1 does not discriminate any technology and creates a level-playing field to evaluate them. However, the methodology could complicate the procurement procedure and the costs of the tests could dissuade SMEs to participate. On the other hand, Option 2 only includes some technologies and could be outdated by new developments. On the positive side, it is very simple to apply and verify.

5.2.1.4 Consultation questions

- Which option do you think is most suitable to promote better performing technologies?
- For Option 1: do you agree with the thresholds proposed? Which baseline would be more appropriate?
- For Option 2: do you agree with the technologies proposed?
- Which issues could hinder the use of this criteria proposal (verification, complexity of calculation, new technology developments?)

5.2.2 Air polluting emissions

5.2.2.1 Rationale

All new buses placed on the market shall comply with EURO VI, which sets quite strict limits on air pollutants. EURO VI reduces PM emissions by 67% compared to EURO IV and V, and includes a PN (particle number) limit. It also decreases NOx emissions by 77% compared to EURO V. The standard also replaces the European Stationary Cycle and Transient Cycle used for testing by the World harmonized Transient cycle, which covers cold and hot start, and in general stricter testing conditions (load, idle time). EURO VI introduces in-service conformity testing using Portable Emission Measurement System, the first one to be carried out within 18 months of the approval and then every 2 years. Other changes are a new limit for ammonia emissions due to the selective catalytic reduction systems using urea and stricter limits for methane on CNG and LNG vehicles (ICCT, 2015).

This level of ambition is already quite difficult to beat, and only electric and hydrogen buses can reduce the emissions further, to zero tail pipe emissions. Therefore, it is proposed to set an award criterion to promote those vehicles able to travel without emitting any air pollutant, i.e. zero tailpipe emission capable. This definition would include plug-in hybrid, pure electric and hydrogen buses.

This is also supported by the Low Emission Buses initiative (LowCVP, 2016), which provides additional funding to buses which have part or full zero emission capabilities - a minimum of 2.5 km of zero emissions. This threshold is suggested for the proposed award criterion.

5.2.2.2 Criterion proposal

Core criteria	Comprehensive criteria
Award criteria	
AC2. Zero tailpipe emission capability Points will be awarded to those vehicles that can demonstrate at least 2.5 km of zero emission capability, in proportion to the excess over this threshold. Verification: The tenderer shall present the technical sheet of the vehicle where this information is stated	AC2. Zero tailpipe emission capability Points will be awarded to those vehicles that can demonstrate at least 5 km of zero emission capability, in proportion to the excess over this threshold. Verification: The tenderer shall present the technical sheet of the vehicle where this information is stated

5.2.2.3 Consequences

The zero emissions technologies will be directly promoted with no apparent additional administrative burdens. However the technologies are significantly more costly.

5.2.2.4 Consultation questions

- Do you agree with the thresholds proposed?
- Which issues could hinder the use of this criteria proposal?

5.2.3 Exhaust pipe location

5.2.3.1 Rationale

The stakeholder consultation showed that there is enough support to keep this criterion. The only update proposed is including this requirement as both a core criterion and comprehensive criterion.

5.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
TS2. Exhaust pipes (location) Vehicles' exhaust pipes shall not be located on the same side as the passenger door. Verification: The tenderer shall provide the technical sheet of the vehicle.	TS2. Exhaust pipes (location) Vehicles' exhaust pipes shall not be located on the same side as the passenger door. Verification: The tenderer shall provide the technical sheet of the vehicle.

5.2.3.3 Consequences

No major changes are expected.

5.2.3.4 Consultation questions

Not applicable.

5.2.4 Technical options to reduce GHG emissions

5.2.4.1 Rationale

The rationale for TS2 on **Lubricant oils** is similar to the rationale for purchase/lease/rental of passenger cars and LCVs (see 3.2.3).

Tyre pressure monitoring systems are not mandatory for buses. The Preliminary report (Section 4.6.2) shows that it is a cost-effective measure, with negative abatement cost, so it is recommended to be part of the core criteria set. One stakeholder highlighted that there are other solutions as sensor plates installed at the bus operator site for tyre pressure monitoring this system allows the operator to monitor the whole fleet while at the same time eliminating the need for the use of batteries for TPMS Systems.

Tyres – rolling resistance: the rationale is similar to the rationale for purchase/lease of passenger cars and LCVs (see 3.2.3).

Air conditioning gases are also relevant for buses, because a large share of the bus fleet is equipped with air-conditioning systems (MAC). Buses and coaches are excluded from the MAC Directive (2006/40/EC) which provides a gradual phase-out of refrigerant HFC-134a from mobile air conditioners in passenger cars and light commercial vehicles, although refrigerant R134a is the main refrigerant for buses (some buses use R407C). However, the HFCs used in these systems are affected by the phase-down put in place by the F-gas Regulation (Regulation (EU) No 517/2014), which will exert a strong pressure on prices of these gases as the supply will become more restricted. Therefore, there is a strong regulatory driver in place that favours the use of low GWP or even non-HFC (e.g. CO₂) technologies in this sector.

It is proposed to lower the GWP (100 years) value from 2500 to 150 as award criterion at both core and comprehensive levels.

Start and stop: Start and stop systems are not commonly used in buses, but are on the market with relative short payback periods. These systems would be already promoted through the Option 1 of the criterion on WTW CO₂ emissions. Therefore, this criterion would be needed just in case Option 2 is chosen. However, a stakeholder indicated that this system is only valid for hybrid and could damage diesel and CNG buses. It is therefore proposed to be removed, since the new technologies that could benefit from this system will have it installed, and thus, already covered by Option 2 of WTW GHG emissions.

5.2.4.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Lubricant oils</p> <p>Vehicles shall use low viscosity engine lubricant oils (LVL). LVL are those corresponding to SAE grade number 0W30 or 5W30 or equivalent 3.</p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended..</p>	
<p>TS4. Vehicle tyres – rolling resistance</p> <p>The rolling resistance (for both new and retreaded tyres), expressed in kg/tonne shall comply with the highest fuel energy efficiency class, as defined by Regulation (EC) No 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters. This requirement shall not prevent the public authority from purchasing tyres with the highest wet grip class where justified by safety.</p> <p>Verification: The tenderer shall provide the technical sheets of the tyres where this information is stated, together with the test reports according to Annex I of Regulation (EC) No 1222/2009...</p>	
<p>TS5. Tyre Pressure Monitoring Systems (TPMS)</p> <p>Vehicles equipped with tyre pressure monitoring systems (TPMS), or with sensors that enable the monitoring at at the bus operator site.</p> <p>Verification: The tenderer shall provide the technical sheet of the vehicle where this information is stated.</p>	
Core criteria	Comprehensive criteria
Award Criteria	
<p>AC3. Air conditioning gases</p> <p>Points will be awarded to those vehicles equipped with an air conditioning system that use a refrigerant with a global warming potential (GWP), related to CO₂ and a time horizon of 100 years, < 150.</p> <p>Verification: The tenderer shall provide the name, formula and GWP of the refrigerating gas used in the air conditioning system. If a mixture of gases is used (n number of gases), the GWP will be calculated as follows: $GWP = \sum(\text{Substance } X1 \% \times GWP(X1)) + (\text{Substance } X2 \% \times GWP(X2)) + \dots$ (Substance Xn % x GWP(Xn)) where % is the contribution by weight with a weight tolerance of +/- 1 %. Information on the GWP of gases can be found at: http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/248.htm</p>	

5.2.4.3 Consequences

In general, many of the fuel reducing measures are available on the market at low or no additional cost. In case of higher investment cost, this cost is easily compensated by the fuel savings reached as direct consequence of the application of these measures. In terms of compliance, the technical sheet of the vehicle is in most cases sufficient to prove compliance and there is no increased administrative burdens compared to the earlier version of the criteria.

5.2.4.4 Consultation questions

- Do you agree on the wording and level of ambition of the proposal?

5.2.5 Noise emissions

5.2.5.1 Rationale

Vehicle noise can have significant negative impacts on the health of residents, especially in case of traffic in or nearby residential areas. This is particularly relevant for buses used in urban public transport.

Tyre noise

The same Regulations as for passenger cars/LCVs are relevant for buses as well, although buses use C2 or C3 tyres, while passenger/cars/ LCVs use C1 tyres. This means that the same rationale can be followed as for these light duty vehicles: allowing only the top class of the Tyre Labelling Directive of 3 dB less than prescribed by Regulation 661/2009.

The criterion is proposed to be a technical specification at comprehensive level and a core award criterion at core level.

Vehicle noise

The same rationale as for cars and LCVs would apply.

5.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specifications	
	<p>TS6. Tyre noise</p> <p>The vehicles shall be equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test results of the tyres where the external rolling noise emissions are stated.</p>
Award criteria	
<p>AC4. Tyre noise</p> <p>Points will be awarded to those vehicles equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test results of the tyres where the external rolling noise emissions are stated,.</p>	
<p>AC5. Vehicle noise</p> <p>Noise emissions in line with the Phase 3 limits of Regulation (EU) No 540/2014.</p> <p>The noise emissions will be tested according to the Annex II of Regulation (EU) No 540/2014.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet or the test report where the noise emissions are stated.</p>	

5.2.5.3 Consequences

The adjustments will probably have limited consequences, because the revision mainly implies an update of the criterion to current market developments. Verification effort will remain the same.

5.2.5.4 Consultation questions

Do you agree with the ambition level proposed for both core and comprehensive levels?

5.2.6 Vehicle manufacturing

5.2.6.1 Rationale

The same rationale as for the category 1 would apply, however, no information specific for buses has been found to properly support the proposal. Nevertheless, it could be assumed that bus manufacturers, some of them also car manufacturers, do not make big distinctions between the manufacturing processes of the different products

5.2.6.2 Proposed criteria

Core criteria	Comprehensive criteria
Award Criteria	
AC6. Vehicle materials Points will be awarded based on the percentage by weight of <ul style="list-style-type: none">- Secondary aluminum- Recycled thermoplastic Verification: The tenderer shall provide the technical sheet of the material and/comment where the information on the process production and origin of the source must be described. The percentage of recycled materials claimed shall be third party verified. Products carrying a relevant Type I Ecolabel fulfilling the criterion will be deemed to comply. Other appropriate means of proof such as a technical dossier from an independent body or a third party certified LCA	
AC7 Lubricant oils, hydraulic fluids and grease Points will be awarded to those vehicles that use: <ul style="list-style-type: none">- Regenerated lubricant oils- Hydraulic fluids and greases that have no Health or Environmental Hazard statement or R-phrase at the time of application (Lowest classification limit in Regulation (EC) No. 1272/2008 or Council Directive 99/45/EC). Verification: The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended.	

5.2.6.3 Consequences

The vehicle material criterion is proposed to be more specific, defining the materials that are currently used by the car manufacturers.

5.2.6.4 Consultation questions

- Do you agree with this proposal?
- Do you know whether it should be bespoke for buses? In this case, what do you recommend for a tailored criterion??

5.2.7 Durability and reuse of the battery

5.2.7.1 Rationale

The same rationale as for the category 1 would apply, however, little or no information for buses has been found to properly support the proposal. The lifetime and mileage of buses differ from cars and LCV, batteries are bigger and driving cycles are different, and this criterion proposal definitely needs to be adapted to buses.

For example, Solaris offers a warranty for 10 000 cycles within 5 years for high power batteries of Lithium-titanite and a warranty for 3 300 cycles within 5 years for high energy batteries of Lithium-iron-phosphate (LiFePO4). Sileo electric buses include charging facilities together with 10 years of warranty for the batteries.

With the data available, it is difficult to define thresholds for discussion.

5.2.7.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical specification (only applicable if the battery is purchased)	
<p>TS7 Minimum warranty The tenderer shall provide a minimum warranty of the battery of xx months or XX0 000km / X000 cycles within Y years. Verification: The tenderers shall declare that they will provide a warranty including the conditions set above. .</p>	<p>TS7 Minimum warranty The tenderer shall provide a minimum warranty of the battery of xx months or XX0 000km / X000 cycles within Y years. Verification: The tenderers shall declare that they will provide a warranty including the conditions set above. ..</p>
Award criteria	
<p>AC8 Extended warranty Points will be awarded to those tenders offering an extension of the warranty of minimum set by the TS. Verification: Same as TS</p>	
<p>AC9. Reuse of the battery Points will be awarded to those tenderers offering a take-back system to collect the EV batteries that are no longer suitable for vehicles, and to reuse them for other purposes that require lower performance of the battery. Verification: The tenderer shall present a description of the take-back system and the agreements with the users of the reused batteries.</p>	

5.2.7.3 Consequences

The inclusion of criteria on the warranty of the battery is meant to improve the durability of the battery lifetime, which has been found to be one of the main hotspot of electric vehicles. .

5.2.7.4 Consultation questions

- Which warranty terms could be requested to the batteries used in electric buses?
- Could you share information about systems to reuse EV batteries in place?

6 CATEGORY 4: BUS SERVICES

6.1 Overview of the revision of the EU GPP criteria

In the case of bus services, various types of measures exist for improving the environmental performance. First of all, the whole criteria set proposed for Category 3 as presented in the previous section could be potentially requested when purchasing services. However, an approach based on fleet composition is needed to make these criteria feasible and workable for services. In addition, several other criteria would only apply to services. These are discussed below.

Bus services					
		Current criterion	Core	Com pr	Revision
TECHNICAL SPECIFICATIONS	1	Exhaust gas emissions	X	X	updated
	2	Noise emissions	X	X	updated
	3	Lubricant oils	---	X	updated
	4	Tyres	---	X	updated
AWARD CRITERIA	1	Exhaust gas emissions	X	X	updated
	2	Use of alternative fuels	X	X	updated
	3	Tyre Pressure Monitoring Systems (TPMS)	---	X	updated
	4	Air conditioning gases	---	X	updated
	5	Vehicle materials	---	X	updated
	6	Start and stop	---	X	updated
CONTRACT PERFORMANCE CLAUSES	1	New vehicles	X	X	updated
	2	Fuel consumption data	X	X	updated
	3	Training of drivers	X	X	updated
	4	Disposal of lubricant oils and tyres	X	X	discarded
	5	Wash bays	---	X	discarded

Bus services				
		Proposed criterion	Core	Com pr
SC	1	Staff training on ecodriving and environmental management	X	X
	1	Emission reduction plan and GHG emissions monitoring	X	X
TECHNICAL SPECIFICATIONS	2	GHG emissions	X	X
	3	Exhaust gas emissions	X	X
	4	LVL	X	X
	5	Tyres - rolling resistance	X	X
	6	Tyre Pressure Monitoring Systems (TPMS)	X	X
	1	Vehicle tyres – noise		X
	1	Minimum warranty of the battery	X	X
	2	Lower GHG emissions	X	X
	2	Exhaust gas emissions	X	X
	3	start-stop systems	X	X
AWARD CRITERIA	3	Air conditioning gases	--	X
	4	Tyre noise	X	
	5	Vehicle noise	X	X
	6	Vehicle materials	X	X
	7	Lubricant oils, hydraulic fluids and grease	X	X
	8	Extended warranty	X	X
	9	Reuse of the battery	X	X
	1	Integrated public transport systems	X	X
	0	Staff training on ecodriving and environmental management	X	X
	2	Emission reduction plan and GHG emissions monitoring	X	X
CPC	3	New vehicles	X	X

6.2 Criteria proposal

6.2.1 Optimized vehicle use

6.2.1.1 Rationale

The same rationales apply for all services.

6.2.1.2 Proposed criteria

Core criteria	Comprehensive criteria
Selection criteria	
<p>SC1. Staff training on ecodriving and environmental management</p> <p>Tenderers shall have in place a training program, including formal written procedures, ensuring that relevant staff is sufficiently trained to provide the service according to the environmental provisions included in the tender.</p> <p>The management staff involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - Be trained to identify and evaluate the available technologies and measures to reduce the WTW GHG emissions and air pollutants emissions - be trained in the monitoring and reporting procedures of the WTW GHG emissions <p>All drivers involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - be trained in a recognised institution on environmentally-conscious driving on a regular basis to increase fuel efficiency; - receive regularly information on their fuel efficiency performance (at least once per month); <p>Adequate training, with a minimum duration of 16 hours, shall be provided to all new staff working under the contract within four weeks of starting employment and an update on the above points, with a minimum duration of 8 hours, for all other staff at least once a year.</p> <p>Verification:</p> <p>The tenderer shall present records of these training measures.</p>	
Contract performance clause	
<p>CPC1. Staff training</p> <p>The service provider shall document and report yearly the amount (hours) and subject of training provided to each member of staff working on the contract to the contracting authority.</p> <p>The yearly staff training records shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.</p>	
Technical specification	
<p>TS1. Emission reduction plan and GHG emissions monitoring</p> <p>The tenderer shall provide an emission reduction plan with measures aimed at reducing the WTW GHG emissions and air pollutants emissions during the contract period. They will also provide the procedures to monitor and report progress of these measures and their impacts. The indicator used shall be GHG emissions of the service (applying a WTW approach), both in total per year and per passenger-kilometer or another unit that reflects the performance of the service.</p> <p>Verification: The tenderer will present the emission reduction plan and the GHG emissions monitoring and reporting procedure based on applying a WTW approach.</p>	
Contract performance clause	
CPC2. Emission reduction plan and GHG emissions monitoring	

The contractor shall implement the measures included in the emission reduction plan and monitor and report the WTW GHG emissions according to the procedure presented in their offer.
The contractor will keep records which shall be made available to the contracting authority. The contracting authority shall foresee rules for penalties for non-compliance.

6.2.1.3 Consequences

This type of optimization might require additional work for the operator, because it will affect its daily business and procedures, especially in terms of administrative efforts required. However, having these measures in place can also result in significant fuel consumption reductions and thus lower fuel cost.

6.2.1.4 Consultation questions

- Do you agree with the training proposed for both management staff and drivers?
- Do you find suitable the training hours proposed?
- Are there any specific characteristic of bus service that requires a tailored wording of these criteria proposal?

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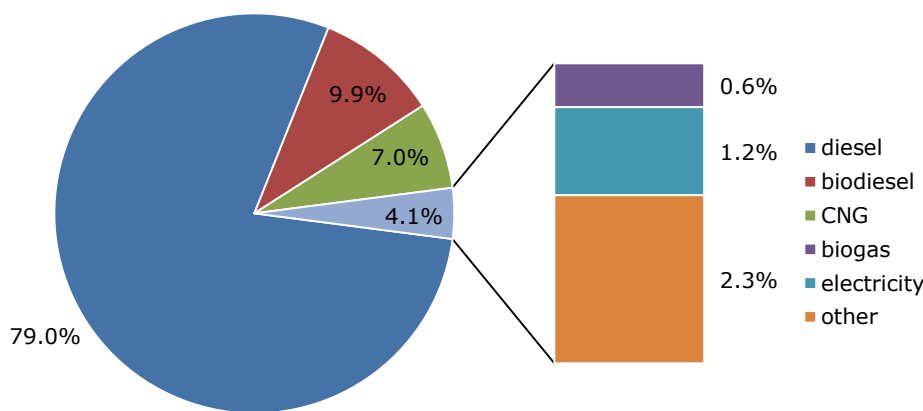
6.2.2 GHG emissions

6.2.2.1 Rationale

The Preliminary report showed that the hybrid technologies are all commercially available and should be seen as a first stage of electrification of the EU fleet, with payback times up to 1.5 years (see section 4.2.1 of the Preliminary report). The alternative fuels powertrains are more costly, but could lead to larger GHG emissions savings.

The current fleet composition is represented in Figure 4:

Figure 4: Shares of fuel type in current public transport bus fleet in the European Union (3iBS, 2013)



It is important to note that 'biodiesel' does not necessarily mean biodiesel compliant with RES Directive.

Therefore, the criteria proposal should reflect this market situation, setting higher ambitions at the comprehensive level.

6.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS2. GHG emissions 12% of the fleet to be used under the contract shall be vehicles that comply with the core TS1 of category 3.</p> <p>Verification: same as TS1 of category 3 together with the list and technical sheets of the whole fleet.</p>	<p>TS2. GHG emissions 25% of the fleet to be used under the contract shall be vehicles that comply with the core TS1 of category 3</p> <p>Verification: same as TS1 of category 3 together with the list and technical sheets of the whole fleet.</p>
Award Criteria	
<p>AC1. GHG emissions Points will be awarded to the fleet to be used under the contract with proportion of vehicles (%) larger than TS2, in proportion to the excess over the TS2.</p> <p>Verification: See above TS2</p>	

6.2.2.3 Consequences

The new technical specification will require the tenderers to have a minimum of hybrid and alternative fuels technologies in their fleets. This will likely entail larger investments, increasing the service cost.

6.2.2.4 Consultation questions

- Do you think it is technically and economically feasible to set minimum requirements on the fleet composition to ensure a proportion of environmentally better performing technologies?
- Would it be more appropriate to set a minimum GHG saving on the average GHG emissions of the fleet?

6.2.3 Air polluting emissions

6.2.3.1 Rationale

Similarly to the GHG emission criteria, the criteria on air polluting emissions and EURO compliance should be set as a proportion of the fleet. The average share of Euro VI heavy duty vehicles in the current fleets is 8% (data from ICCT, ACEA and OICA, EU-28 and EFTA average). More than 60% of the heavy duty vehicles using diesel is still equipped with Euro III (implemented in 2000), 11% with Euro IV (in 2005) and 15% complies with Euro V. The average age of the bus fleet has been increasing the last year to reach 55% of buses above 10 years and less than 10% below 2 years (see 4.2.1 of the Preliminary Report).

Based on these facts, a minimum percentage of 40% of EURO VI is proposed for core and 60% for comprehensive level. This will stimulate the acceleration of the replacement rate to increase the share of Euro 6 buses.

6.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Exhaust gas emissions All vehicles used in carrying out the service shall meet at least EURO V. 40% of vehicles shall meet EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>	<p>TS3. Exhaust gas emissions All vehicles used in carrying out the service shall meet at least EURO V. 60% of vehicles shall meet EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>
Core criteria	Comprehensive criteria
Award Criteria	
<p>AC2. Air polluting emissions Points will be awarded to the fleet to be used under the contract with proportion of vehicles used in carrying out the service (%) larger than TS3, in proportion to the excess over the TS3.</p> <p>Verification: See above TS3</p>	

6.2.3.3 Consequences

The suggested changes might entail an increase of the replacement rate, and therefore a larger investment.

6.2.3.4 Consultation questions

- Do you think it is feasible to set minimum requirements on the fleet composition to ensure a proportion of EURO VI and minimum EURO V compliance for the fleet?
- Do you agree with the percentages proposed? Are they affordable?

6.2.4 Technical measures to reduce GHG and noise emissions, vehicle-manufacturing and battery related measures

6.2.4.1 Rationale

In general, many of the fuel and noise reducing measures described sections 5.2.4 and 5.2.5 are available on the market at low or no additional cost. In case of higher investment cost, this cost is easily compensated by the fuel savings reached as direct consequence of the application of these measures, or the criterion is worded as an award criterion.

For the vehicle-manufacturing measures (section 5.2.6) they could be requested to the fleet, awarding points based on the proportion of fleet complying with the award criteria.

In the case of EV battery related measures (section 5.2.7), they could also be requested to the electric vehicles included in the offer.

However, the verification process could turn into a burdensome task, since all the criteria should be verified for all vehicles of the fleet to be used under the contract.

Therefore, it is proposed that the public procurer can choose which criteria to request from the Category 3, adapted to the service, the fleet dimensions, the duration of the contract, etc. For the outsourcing of public transport services, it is recommended to use the measures described sections 5.2.4 and 5.2.5.

6.2.4.2 Consequences

Consequences will be limited as result of the lower cost and relative short payback time. However, additional administrative burdens may be expected due to the verification of the criteria for the entire fleet.

6.2.4.3 Consultation questions

- Do you agree on the proposal to apply these sets of criteria based on the needs of the service?
- Is it suitable to disable this flexibility in case of bus services devoted to public transport?

6.2.5 New vehicles

6.2.5.1 Rationale

A fleet can change over the duration of the contract. In order to maintain the level of environmental performance of the fleet or even continuously improving this environmental performance over time a CPC can lay down the requirements for new vehicles.

6.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Contract Performance Clauses	
CPC3. New vehicles The purchase of new vehicle shall contribute to keep or increase the percentage of vehicles complying with TS WTW GHG emissions and with TS air pollutant emissions offered in the tender. The contractor will keep records which shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.	

6.2.5.3 Consequences

The tenderer might need to modify the internal procurement procedures.

6.2.5.4 Consultation questions

N.A.

6.2.6 Integrated public transport systems

6.2.6.1 Rationale

Integrated public transport systems are aimed at designing public transport in a way that it can easily integrate other mobility offers (e.g. car sharing, bike sharing, taxis, etc.). In Austria, the SMILE-project (2014-2015) (Smile-einfachmobil), aimed to include public transport, urban mobility services and national railway in the same concept offering planning options and ability to book and obtain tickets in the same app (without subscription or packaging).

According to their website, *SMILE increased the intermodality of pilot users. 26% confirmed an increased use of public transport in combination with their private cars. 20% combined public transport and riding a bicycle more often. Mostly shared bikes (68%) and private bikes (51%) were combined with public transportation, followed by private car (51%), carsharing (49%), e-carsharing (8% and e-bike sharing (5%). The main motivation for the increase in combinations of public transportation and car / bike is the quicker alternative smile suggested (69%/ 74%).*

The usage of SMILE also led to changes in the choice which mode of transport to use. 48% respondents increased usage of public transportation (PT) (urban PT 26%, regional PT 22%). 10% increased the use of bikesharing offers while 4% increased the usage of e-carsharing as well as another 4% increased the usage of e-bike/pedelec. 21% of the surveyed pilot users stated to have reduced the usage of their private car.

Therefore, it is interesting to put forward a criterion aimed at promoting the integration of the bus service with other mobility options. Based on the outcomes of SMILE, the bus service should be part of a mobility platform integrating various means of transport and combining them with routing information and user data to provide individual mobility offers. For trips from A to B the mobility platform offers different individual options and combinations, but in the case of EU GPP criteria, the minimum offer performing the lowest CO₂ emission should prevail, meaning that non-motorised vehicles and public transport modes should be prioritised.

Since the experiences that inspire this proposal are still pilot projects, the criterion is recommended to be an award criterion.

6.2.6.2 Proposed criteria

Core criteria	Comprehensive criteria
Award criteria	
AC11. Integrated public transport systems Points will be awarded to those offers that include the provisions needed to integrate the bus service into a mobility platform. The mobility platform shall prioritise non-motorised vehicles and public transport modes. Verification: The tenderer shall present a description of the mobility platform, the decision-making process to prioritise non-motorised and public transport modes, together with the partnership agreement to participate in the platform.	

6.2.6.3 Consequences

The criterion proposed is drafted to offer enough flexibility for implementation, enabling the reward of the bus service integration and the promotion of low CO₂ combinations, wherever this option is available. According to the *SMILE* project's experience, it could lead to an increase in the use of public transport; however it is uncertain to which extent the collaboration with these platforms could entail additional economic or administrative burdens.

6.2.6.4 Consultation questions

- Do you agree with this criterion proposal? Is there any barrier that could hinder its application?
- Is there any information available that could improve the wording of this criterion proposal?

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7 CATEGORY 5: PURCHASE OR LEASE OF WASTE COLLECTION VEHICLES

7.1 Overview of the revision of the EU GPP criteria

The tables below show a summary of the revision proposal for the current EU GPP criteria of the category 'purchase and lease of waste collection trucks'. The proposal is further described in the following sections

Purchase/lease of waste collection trucks					
		Current criterion	Core	Com pr	Revision
TECHNICAL SPECIFICATIONS	1	Exhaust gas emissions	X	X	discarded
	2	Noise emission levels	X	X	updated
	3	Pollutant emissions	---	X	updated
	4	Lubricant oils	---	X	updated
	5	Tyres	---	X	updated
AWARD CRITERIA	1	Use of alternative fuels	X	X	updated
	2	Exhaust gas emissions	X	---	updated
	2	Tyre Pressure Monitoring Systems (TPMS)	---	X	updated
	3	Vehicle materials	---	X	updated

Purchase/lease of waste collection vehicles				
		Criterion	Core	Co mpr
TECHNICAL SPECIFICATIONS	1	GHG emissions	X	X
	2	Exhaust emissions from auxiliary units	X	X
	3	LVL	X	X
	4	Tyres - rolling resistance	X	X
	5	Tyre Pressure Monitoring Systems (TPMS)	X	X
	6	Tyre noise		X
	7	Minimum warranty of the battery	X	X
AWARD CRITERIA	1	Lower GHG emissions	X	X
	2	Exhaust emissions from auxiliary units		X
	3	Zero tailpipe emission capability	X	X
	4	Air conditioning	X	X
	5	Tyre noise	X	
	6	Vehicle noise	X	X
	7	Vehicle materials	X	X
	8	Lubricant oils, hydraulic fluids and grease	X	X
	9	Extended warranty	X	X
	10	Reuse of the battery	X	X

The criterion for exhaust gas emissions (current TS1) is proposed to be deleted in the revised version of EU GPP criteria, because of a lack of an update of the Euro VI emission standard (mandatory for all new buses and trucks) and because a further reduction of air polluting emissions asks for the use of alternative fuels and powertrains, which is already covered by TS1 GHG emissions and AC2 Zero tailpipe emission capability proposed below.

7.2 Criteria proposal

7.2.1 GHG emissions

7.2.1.1 Rationale

The stakeholder consultation suggests that a technology-neutral approach based on GHG emissions could be explored as an option to revise the criterion on alternative fuels in waste collection trucks. Most comments were very similar to the ones on buses, and the rationale for the criterion proposed on GHG emissions (see section 5.2.1) is almost fully applicable to waste collection trucks.

There is the same lack of robust and comparable data on energy consumption of waste collection trucks. The VECTO tool is aimed at measuring and reporting CO₂ emissions from heavy vehicles, and this would be used also for waste collection trucks. LowCVP has recently launched a project to cut emissions from heavy duty vehicles (LowCVP, 2016) similar to the Low Emission Buses, which has already settled a test protocol to measure the fuel consumption of trucks. However, there is no definition of 'low emission truck' yet.

It hasn't been found any test method so widespread as SORT for these vehicles, which would make this criterion proposal rely completely on the VECTO tool, or on initiatives similar to the LowCVP initiative mentioned above,

For these reasons, the same options as for buses are proposed for waste collection trucks:

- Option 1 technology-neutral approach: the criterion is proposed to be based on the WTW GHG emissions in line to LowCVP scheme, using default WTT factors for the different fuels and energy carriers.
- Option 2 technology-specific approach: the criterion is proposed to promote directly the technologies that have been identified as improvement options in the Preliminary report.

Option 1: technology-neutral approach based WTW GHG emissions indicator

The WTW GHG savings should promote the best technologies currently in the market. The Preliminary report (see sections 4.6.2. and 4.6.3 of the Preliminary report) showed the following options and their potential savings compared to a new truck (EURO VI) (see Table 4):

Table 6: WTW GHG savings and payback periods for different technologies and powertrains

Technology	WTW CO₂ savings (compared to EURO VI)	Payback periods (years)
Hybrid electric / hydraulic hybrid vehicles	25% / 15%	4 - 16
Dedicated natural gas vehicles	5% - 16% (CNG) 61% - 65% (Biogas)	6 - 18
Alternative fuels	10% - 12%	> 9

Figure 5: WTW GHG emissions for different NG-based energy carriers - rigid trucks (CE Delft, TNO and ECN, 2013)

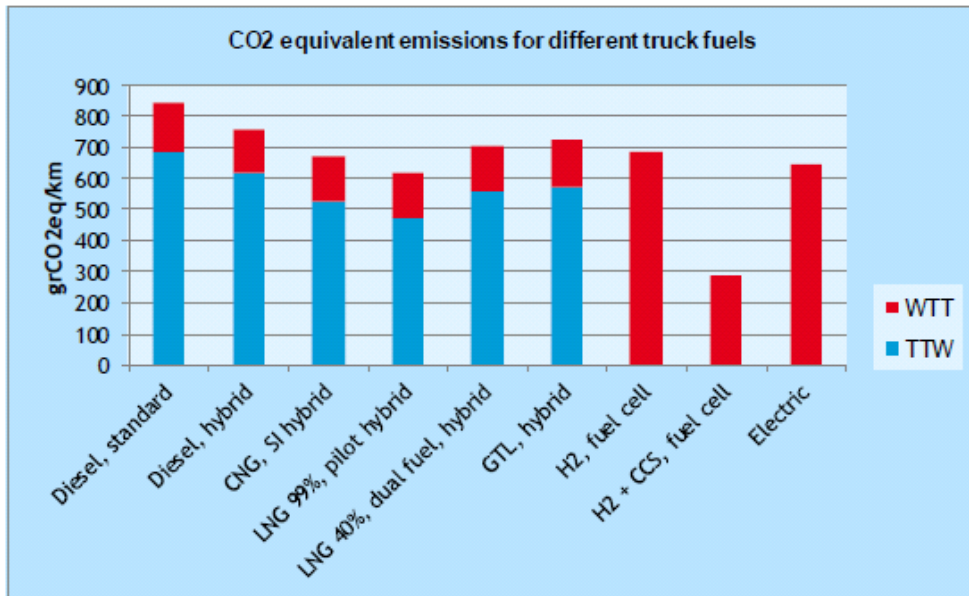
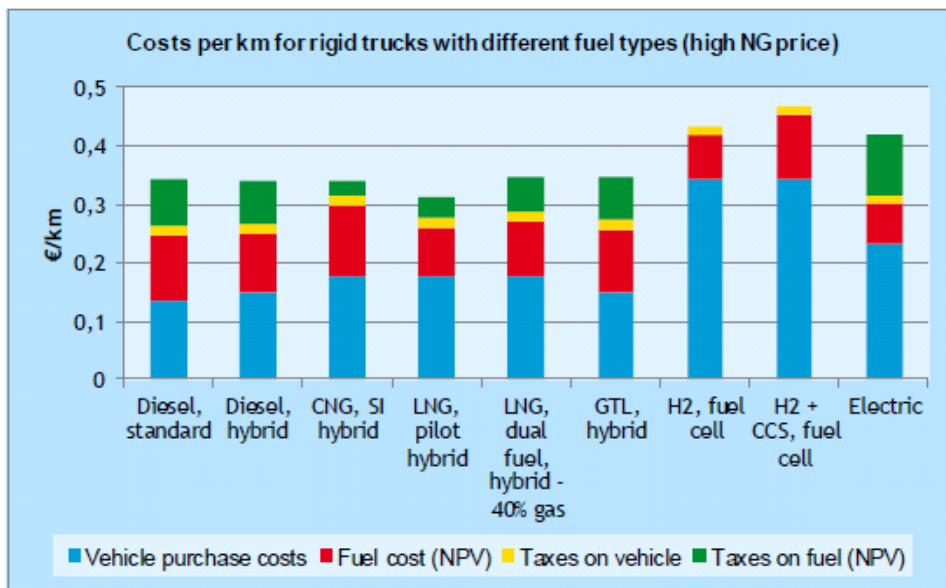


Figure 6: Cost for different NG-based energy carriers - trucks, high and low NG price (CE Delft, TNO and ECN, 2013)



The reference truck is crucial to formulate the criterion in Option 1, and the coming regulations aimed at measuring and reporting CO₂ emissions of HDV will apply to new buses placed in the market, i.e. EURO VI trucks. Given that Option 1 will need this regulation to be implemented, EURO VI diesel is proposed as baseline.

The results on performance of the trucks studied suggest that a threshold of 10% WTW GHG savings will select hybrid trucks and best CNG trucks. This could be assumed by a public procurer as core criterion. A threshold above 20% would choose full electric trucks and biogas and renewable hydrogen, which would suit better as comprehensive level.

Option 2: technology-specific approach

Option 2 is proposed to select directly those technologies that perform lower WTW GHG emissions than a diesel truck, as identified in the Preliminary report (see sections 5.6.2. and 6.4.2 of the Preliminary report). These are the following ones:

- Dedicated natural gas vehicles
- Hybrid trucks, both diesel and NG
- Full Electric trucks
- Fuel Cell Electric trucks.

Biogas and renewable hydrogen could important additional savings. It is therefore proposed a provision to promote the use of renewable energy in the form of an award criterion.

7.2.1.2 Proposed criteria

Option 1

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS1 GHG emissions</p> <p>The waste collection truck shall demonstrate WTW GHG emissions reduction of 15% compared to an equivalent EURO V/VI bus (for discussion).</p> <p>The WTW GHG emissions will be calculated multiplying the energy consumption by the GHG emission factors in Table 4.</p> <p>The contracting authority will set in the call for tender:</p> <ol style="list-style-type: none"> 1) the test method to be used to measure the energy consumption according to recognised and validated standards, and 2) the WTW GHG emissions of the bus to be used as reference.. <p>Verification</p> <p>The tenderer shall present the test report according to the standard, showing the results of energy consumption of the vehicle offered. The test shall be carried out or witnessed by technical services appointed by the type-approval authority.</p> <p>The tenderer shall present a declaration of the WTW GHG emissions using the method set above.</p> <p>In the case of the use of biofuels, the tenderer shall provide the composition of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission (https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system</p>	<p>TS1 GHG emissions</p> <p>The waste collection truck shall demonstrate WTW GHG emissions reduction of 25%.compared to an equivalent EURO V/VI bus (for discussion).</p> <p>The WTW GHG emissions will be calculated multiplying the energy consumption by the GHG emission factors in Table 4.</p> <p>The contracting authority will set in the call for tender:</p> <ol style="list-style-type: none"> 1) the test method to be used to measure the energy consumption according to recognised and validated standards, and 2) the WTW GHG emissions of the bus to be used as reference. <p>Verification</p> <p>The tenderer shall present the test report according to the standard, showing the results of energy consumption of the vehicle offered. The test shall be carried out or witnessed by technical services appointed by the type-approval authority.</p> <p>The tenderer shall present a declaration of the WTW GHG emissions using the method set above.</p> <p>In the case of the use of biofuels, the tenderer shall provide the composition of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by the European Commission (https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system</p>

that avoids the mix with non-certificated suppliers. In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the dedicated supply system. Hydrogen produced with 100% RES electricity shall demonstrate the on-site production of RES electricity.	that avoids the mix with non-certificated suppliers. In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the dedicated supply system. Hydrogen produced with 100% RES electricity shall demonstrate the on-site production of RES electricity.
Award criteria	
AC1 Lower GHG emissions Points will be awarded to those tenders offering a larger WTW GHG saving than the TS in proportion to the extra saving. In case of 100% biofuel buses, points will be awarded to those tenders that provide the contract(s) with supplier(s) of advanced biofuels, i.e. produced from lignocellulosic feedstocks (i.e. agricultural and forestry residues, e.g. wheat straw/corn stover/bagasse, wood based biomass), non-food crops (i.e. grasses, miscanthus, algae), or industrial waste and residue streams. Verification: same as TS	

Option 2

Core criteria	Comprehensive criteria
Technical Specifications	
TS1. Use of technological improvement options The bus shall be equipped by one of the following technologies demonstrating WTW GHG emissions reduction <ul style="list-style-type: none"> • Dedicated natural gas vehicles • Hybrid trucks, both diesel and NG • Biogas vehicles • 100% biofuels vehicles, provided the biofuels comply with the requirements set by the RES Directive • Full Electric trucks • Fuel Cell Electric trucks. Verification: The tenderer shall present the technical sheet of the vehicle where these technical or fuel technology specifications are stated. In the case of the use of biofuels, the tenderer shall provide the percentage of the blend, the contract(s) with supplier(s), their certificates, issued by one of the voluntaries certification schemes approved by European Commission (https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes), and the description of the dedicated supply system that avoids the mix with non-certificated suppliers. In the case of the use of biogas or hydrogen, the tenderer shall provide the contract(s) with supplier(s) and the description and technical specifications of the production and the dedicated supply system.	
Award criteria	
AC1. Use of technological improvement options Points will be awarded to those tenders that provide the contract(s) with supplier(s) of: <ul style="list-style-type: none"> • Electricity from 100% renewable electricity • Hydrogen from 100% renewable electricity • Biogas from municipal organic waste or manure. • Advanced biofuels, i.e. produced from lignocellulosic feedstocks (i.e. agricultural and 	

forestry residues, e.g. wheat straw/corn stover/bagasse, wood based biomass), non-food crops (i.e. grasses, miscanthus, algae), or industrial waste and residue streams.

Verification: same as TS. 100% RES electricity shall demonstrate the on-site production of RES electricity

7.2.1.3 Consequences

There are advantages and drawbacks for both options that could influence the practical implementation of the criterion. Option 1 does not discriminate any technology and sets a level-playing field to evaluate them. However, the methodology could complicate the procurement procedure and should wait for the VECTO tool. On the other hand, Option 2 only includes some technologies and could be outdated due to the new developments. As an offset, it is very simple to apply and verify.

7.2.1.4 Consultation questions

- Which option do you think it is most suitable to promote best technologies?
- Do you identify any other options to promote them?
- For Option 1: do you agree with the thresholds proposed?
- For Option 2: do you agree with the technologies proposed?
- Which issues could hinder the use of this criteria proposal (verification, test methods, complexity of calculation, new technology developments?)

7.2.2 Auxiliary units

7.2.2.1 Rationale

The current EU GPP criteria are extracted from the Blue Angel standard RAL-UZ 59 'Low-Noise and Low-Pollutant Municipal Vehicles and Buses'. This document has been updated in April 2014. The requirements within the RAL-UZ 59 are based on compliance with the Directive 97/68/EEC (Stage IIIa), which will be replaced by Regulation (EU) No 2016/1628 of the requirements related to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery (NRMM). The new NRMM Regulation shall apply as of 1 January 2017. The NRMM Regulation defines emission limits for NRMM engines for different power ranges and applications. It also lays down the procedures engine manufacturers have to follow in order to obtain type-approval of their engines, but not for all models placed in the market. Therefore it is proposed as technical specification at core and comprehensive levels.

An award criterion is added for the electrification of the auxiliary engines. According to section 5.6 of the Preliminary report, electrification of the stationary phases of operation could reduce the need to turn on the main engine significantly and thus reduce emissions.

7.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
TS2. Pollutant emissions The vehicle's emissions from the separate engines for auxiliary units meet the exhaust emission limits below according to Regulation (EU) No 2016/1628, Stage V. Verification: The tenderer shall present either a type approval certificate, or a test report from an independent laboratory according to the Regulation (EU) No 2016/1628	
Award criteria	
	AC2. Electrification of auxiliary engines Points will be awarded to those vehicles equipped with electric auxiliary units, in order to reduce noise and air polluting emissions during stationary processes. Verification: The tenderer shall present the technical sheet of the vehicle where this information is stated.

7.2.2.3 Consequences

The criterion proposed will stimulate the implementation of the limits set by the new NRMM Regulation, and increase the electrification of the auxiliary units.

7.2.2.4 Consultation questions

N.A.

7.2.3 Air polluting emissions

As explained in section 5.2.2.1, EURO VI sets ambitious limits for air pollutants. This level of ambitious is already quite difficult to beat, and only electric and hydrogen buses can reduce the emissions further, to zero tail pipe emissions. Therefore, it is proposed to set an award criterion to promote the vehicle is able to travel without emitting any air pollutant, i.e. zero emission capable. This definition would include plug-in hybrid, pure electric and hydrogen trucks.

The same threshold is suggested for the proposed award criterion, even though no source has been found to support this value for waste collection trucks. Due to the different duty cycle, this figure might not be suitable

7.2.3.1 Criterion proposal

Core criteria	Comprehensive criteria
Award criterion	
<p>AC3. Zero tailpipe emission capability Points will be awarded to those vehicles that can demonstrate at least 2.5 km of zero emission capability Verification: The tenderer shall present the technical sheet of the vehicle where this information is stated</p>	<p>AC3. Zero tailpipe emission capability Points will be awarded to those vehicles that can demonstrate at least 5 km of zero emission capability Verification: The tenderer shall present the technical sheet of the vehicle where this information is stated</p>

7.2.3.2 Consequences

The zero emissions technologies will be directly promoted with no apparent additional administrative burdens. However the technologies are significantly more costly.

7.2.3.3 Consultation questions

- Do you agree with the thresholds proposed? Are they suitable for waste collection trucks?
- Which issues could hinder the use of this criteria proposal?

7.2.4 Technical measures to reduce GHG emissions

7.2.4.1 Rationale

Technical improvement options

The rationale for TS2 on **Lubricant oils** is similar to the rationale for purchase/lease of passenger cars and LCVs (see 3.2.3).

Tyres – rolling resistance: the rationale is similar to the rationale for purchase/lease of passenger cars and LCVs (see 3.2.3).

Tyre pressure monitoring systems is similar to the rationale for buses (see 5.2.4).

Air conditioning gases: is similar to the rationale for buses (see 5.2.4).

Start and stop: is similar to the rationale for buses (see 5.2.4).

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7.2.4.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
TS2. Lubricant oils	
Vehicles shall use low viscosity engine lubricant oils (LVL). LVL are those corresponding to SAE grade number 0W30 or 5W30 or equivalent 3.	
Verification	
The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended.	
TS10. Vehicle tyres – rolling resistance	
The rolling resistance (for both new and retreaded tyres), expressed in kg/tonne shall comply with the highest fuel energy efficiency class, as defined by Regulation (EC) No 1222/2009 of the European Parliament and of the Council of 25 November 2009 on the labelling of tyres with respect to fuel efficiency and other essential parameters. This requirement shall not prevent the public authority from purchasing tyres with the highest wet grip class where justified by safety.	
Verification:	
The tenderer shall provide the technical sheets of the tyres where this information is stated, together with the test reports according to Annex I of Regulation (EC) No 1222/2009.	
TS4. Tyre Pressure Monitoring Systems (TPMS)	
Vehicles shall be equipped with tyre pressure monitoring systems (TPMS), or with sensors that enable the monitoring at the bus operator site.	
Verification:	
The tenderer shall provide the technical sheet of the vehicle where this information is stated.	
Award criteria	
AC4. Air conditioning gases	
Points will be awarded to those vehicles equipped with an air conditioning system that use a refrigerant with a global warming potential (GWP), related to CO ₂ and a time horizon of 100 years, < 150.	
Verification:	
The tenderer shall provide the name, formula and GWP of the refrigerating gas used in the air conditioning system. If a mixture of gases is used (n number of gases), the GWP will be calculated as follows:	
$GWP = \Sigma(\text{Substance } X1 \% \times GWP(X1)) + (\text{Substance } X2 \% \times GWP(X2)) + \dots$ $(\text{Substance } Xn \% \times GWP(Xn))$	
where % is the contribution by weight with a weight tolerance of +/- 1 %.	
Information on the GWP of gases can be found at:	
http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/248.htm	

7.2.4.3 Consequences

In general, many of the fuel reducing measures are available on the market at low or no additional cost. In case of higher investment cost, this cost is easily compensated by the fuel savings reached as direct consequence of the application of these measures. In terms of compliance, the technical sheet of the vehicle is in most cases sufficient to prove compliance and there are there no increased administrative burdens compared to the current version of the criteria.

7.2.4.4 Consultation questions

- Do you agree with the update proposed?
- Do you identify any other technical measure for waste collection trucks?

7.2.5 Noise emission levels

7.2.5.1 Rationale

Tyre noise

The same Regulations as for passenger cars/LCVs are relevant for trucks as well, although buses use C2 or C3 tyres, while passenger/cars/ LCVs use C1 tyres. This makes the same rationale can be followed as for these light duty vehicles: allowing only the top class of the Tyre Labelling Directive of 3 dB less than prescribed by Regulation 661/2009.

The criterion is proposed to be a TS at comprehensive level and a core award criterion at core level.

Vehicle noise

The current EU GPP criteria are based on the Blue Angel standard 'Low-Noise and Low-Pollutant Municipal Vehicles and Buses'. This document has been updated in April 2014 and set a limit of 98 dB for operating noise.

Regulation (EU) No 540/2014 sets noise limits for N3 vehicles between 79 and 82 dB(A) for phase 1 and being applicable for new vehicles types from 1 July 2016. . Phase 2 (range 77 – 81 dB(A)) will be applicable for new vehicle type from 1 July 2020 and for first registration from 1 July 2022, and phase 3 (range 76 – 79 dB(A)) will be applicable for new vehicle type from 1 July 2024 and for first registration from 1 July 2026. The regulation does not include any provision to exclude waste collection trucks, or vehicles for special purposes, in general. According to a report from TNO (TNO, 2012), there was technology commercially available for shielding and encapsulation for trucks in 2010, and there were models that fulfilled phase 3 limits available in the market. Therefore, the award criterion is proposed to promote phase 3 compliant vehicles in line with the other categories.

7.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specifications	
	<p>TS9. Tyre noise</p> <p>The vehicles shall be equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test results of the tyres where the external rolling noise emissions are stated..</p>
Award criteria	
<p>AC5. Tyre noise</p> <p>Points will be awarded to those vehicles equipped with tyres with external rolling noise emission levels 3dB below the maximum established in Regulation (EC) No 661/2009 Annex II Part C. This is equivalent to the top category (of the three available) of the EU tyre label external rolling noise class.</p> <p>The external rolling noise emissions will be tested according to the Annex I of Regulation (EC) No 1222/2009.</p> <p>Verification: The tenderer shall provide the technical sheets or test results of the tyres where the external rolling noise emissions are stated.</p>	
<p>AC6. Vehicle noise</p> <p>Noise emissions in line with the Phase 3 limits of Regulation (EC) No 540/2014.</p> <p>The noise emissions will be tested according to the Annex II of Regulation (EU) No 540/2014.</p> <p>Verification:</p> <p>The tenderer shall provide the technical sheet or the test report where the noise emissions are stated.</p>	

7.2.5.3 Consequences

The adjustments will probably have limited consequences, because the revision mainly implies an update of the criterion to current market developments. Verification effort will remain the same.

7.2.5.4 Consultation questions

- Do you agree with the ambition level proposed for both core and comprehensive levels?

7.2.6 Vehicle manufacturing

7.2.6.1 Rationale

The rationale would be the same as for buses.

7.2.6.2 Proposed criteria

Core criteria	Comprehensive criteria
Award Criteria	
AC7. Vehicle materials Points will be awarded based on the percentage by weight of <ul style="list-style-type: none">- Secondary aluminum- Recycled thermoplastic Verification: The tenderer shall provide the technical sheet of the material and/comment where the information on the process production and origin of the source must be described. The percentage of recycled materials claimed shall be third party verified. Products carrying a relevant Type I Ecolabel fulfilling the criterion will be deemed to comply. Other appropriate means of proof such as a technical dossier from an independent body or a third party certified LCA	
AC8 Lubricant oils, hydraulic fluids and grease Points will be awarded to those vehicles that are prepared to use: <ul style="list-style-type: none">- Regenerated lubricant oils- Hydraulic fluids and greases that have no Health or Environmental Hazard statement or R-phrase at the time of application (Lowest classification limit in Regulation (EC) No. 1272/2008 or Council Directive 99/45/EC). Verification: The tenderer shall provide the technical sheet of the vehicle where the proposed lubricants are recommended.	

7.2.6.3 Consequences

The vehicle material criterion is more defined to incorporate materials that are currently used by the car manufacturers.

7.2.6.4 Consultation questions

- Do you agree with this proposal?
- Do you know whether it should be bespoke for waste collection trucks? In this case, what do you recommend for a tailored criterion?

7.2.7 Durability and reuse of the battery

7.2.7.1 Rationale

The same rationale as for the category 5 would apply, however, little or no information has been found to properly support the proposal. The lifetime, mileage and duty cycles of waste collection trucks differ from buses; there are different types and dimensions, so this criterion proposal definitely needs to be adapted to waste collection trucks.

Core criteria	Comprehensive criteria
Technical specification (only applicable if the battery is purchased)	
TS7 Minimum warranty The tenderer shall provide a minimum warranty of the battery of xx months or XX0 000km Verification: The tenderers shall declare that they will provide a warranty including the conditions set above. .	TS7 Minimum warranty The tenderer shall provide a minimum warranty of the battery of xx months or XX0 000km Verification: The tenderers shall declare that they will provide a warranty including the conditions set above. .
Award criteria	
AC9 Extended warranty Points will be awarded to those tenders offering an extension of the warranty of minimum set by the TS. Verification: Same as TS	
AC10. Reuse of the battery Points will be awarded to those tenderers offering a take-back system to collect the EV batteries that are no longer suitable for vehicles, and to reuse them for other purposes that require lower performance of the battery. Verification: The tenderer shall present a description of the take-back system and the agreements with the users of the reused batteries.	

7.2.7.2 Consequences

The inclusion of criteria on the warranty of the battery is meant to improve the durability of the battery lifetime, which has been found to be one of the main hotspot of electric vehicles. .

7.2.7.3 Consultation questions

- Which warranty terms could be requested to the batteries used in electric trucks?
- Could you share information about systems to reuse EV batteries in place?

8 CATEGORY 6: WASTE COLLECTION SERVICES

8.1 Overview of the revision of the EU GPP criteria

In the case of waste collection services, various types of measures exist for improving the environmental performance. First of all, the whole criteria set proposed for Category 5 as presented in the previous section could be potentially requested when purchasing services. However, an approach based on fleet composition is needed to make these criteria feasible and workable for services. In addition, several other criteria would only apply to services. These are discussed below.

Waste collection services					
	Current criterion	Core	Compr	revision	
TECHNICAL SPECIFICATIONS	1	Exhaust gas emissions	X	X	updated
	2	Noise emissions	X	X	updated
	3	Pollutant emissions	---	X	updated
	4	Lubricant oils	---	X	updated
	5	Tyres	---	X	updated
AWARD CRITERIA	1	Exhaust gas emissions	X	X	updated
	2	Use of alternative fuels	X	X	updated
	3	Tyre Pressure Monitoring Systems (TPMS)	---	X	updated
	4	Vehicle materials	---	X	updated
PERFORMANCE	1	New vehicles	X	X	updated
	2	Fuel consumption data	X	X	updated
	3	Training of drivers	X	X	updated
	4	Disposal of lubricant oils and tyres	X	X	discarded
	5	Wash bays	---	X	discarded

Waste collection services						
	Proposed criterion	Core	Compr			
TECHNICAL SPECIFICATIONS	SC 1	Staff training on ecodriving and environmental management	X	X		
	1	Emission reduction plan and GHG emissions monitoring	X	X		
	2	GHG emissions	X	X		
	3	Exhaust gas emissions	X	X		
	4	LVL	X	X		
	5	Tyres - rolling resistance	X	X		
	6	Tyre Pressure Monitoring Systems (TPMS)	X	X		
	11	Vehicle tyres - noise			X	
	12	Minimum warranty of the battery	X	X		
	AWARD CRITERIA	1	Lower GHG emissions	X	X	
		2	Exhaust gas emissions	X	X	
		3	Exhaust gas from aux units	X	X	
4		Tyre noise	X			
5		Vehicle noise	X	X		
6		Vehicle materials	X	X		
7		Lubricant oils, hydraulic fluids and grease	X	X		
8		Extended warranty	X	X		
9		Reuse of the battery	X	X		
10		Route optimisation	X	X		
CPC	1	Staff training on ecodriving and environmental management	X	X		
	2	Emission reduction plan and GHG emissions monitoring	X	X		
	3	New vehicles	X	X		

8.2 Criteria proposal

8.2.1 Optimised vehicle use

8.2.1.1 Rationale

The same rationales apply for all services.

8.2.1.2 Proposed criteria

Core criteria	Comprehensive criteria
Selection criteria	
<p>SC1. Staff training on ecodriving and environmental management</p> <p>Tenderers shall have in place a training program, including formal written procedures, ensuring that relevant staff is sufficiently trained to provide the service according to the environmental provisions included in the tender.</p> <p>The management staff involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - Be trained to identify and evaluate the available technologies and measures to reduce the WTW GHG emissions and air pollutants emissions - be trained in the monitoring and reporting procedures of the WTW GHG emissions <p>All drivers involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - be trained in a recognised institution on environmentally-conscious driving on a regular basis to increase fuel efficiency; - receive regularly information on their fuel efficiency performance (at least once per month); <p>Adequate training, with a minimum duration of 16 hours, shall be provided to all new staff working under the contract within four weeks of starting employment and an update on the above points, with a minimum duration of 8 hours, for all other staff at least once a year.</p> <p>Verification:</p> <p>The tenderer shall present records of these training measures.</p>	
Contract performance clause	
<p>CPC1. Staff training</p> <p>The service provider shall document and report yearly the amount (hours) and subject of training provided to each member of staff working on the contract to the contracting authority.</p> <p>The yearly staff training records shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.</p>	
Technical specification	
<p>TS1. Emission reduction plan and GHG emissions monitoring</p> <p>The tenderer shall provide an emission reduction plan with measures aimed at reducing the WTW GHG emissions and air pollutants emissions during the contract period. They will also provide the procedures to monitor and report progress of these measures and their impacts. The indicator used shall be GHG emissions of the service (applying a WTW approach), both in total per year and per tonne-kilometer or another unit that reflects the performance of the service.</p> <p>Verification: The tenderer will present the emission reduction plan and the GHG emissions monitoring and reporting procedure based on applying a WTW approach.</p>	

Contract performance clause

CPC2. Emission reduction plan and GHG emissions monitoring

The contractor shall implement the measures included in the emission reduction plan and monitor and report the WTW GHG emissions according to the procedure presented in their offer.

The contractor will keep records which shall be made available to the contracting authority. The contracting authority shall foresee rules for penalties for non-compliance.

8.2.1.3 Consequences

This type of optimization might require additional work for the operator, because it will affect its daily business and procedures, especially in terms of administrative efforts required. However, having these measures in place can also result in significant fuel consumption reductions and thus lower fuel cost.

8.2.1.4 Consultation questions

- Do you agree with the training proposed for both management staff and drivers?
- Do you find suitable the training hours proposed?
- Are there any specific characteristic of the waste collection service that requires a tailored wording of these criteria proposal?

8.2.2 GHG emissions

8.2.2.1 Rationale

In terms of alternative fuels Eurostat statistics show that the share of electrical energy in trucks is still very limited (<1%) and the biggest growth is caused by the application of natural gas in vehicles with a load capacity <1500 kg. Natural gas in vehicles >1500 kg are also limited (see section 6.2.1 of the Preliminary report).

Therefore, the criteria proposal should reflect this market situation, setting a higher percentage at the comprehensive level.

8.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
TS2. GHG emissions 12% of the fleet to be used under the contract shall be vehicles that comply with the core the TS1 of category 5. Verification: same as the core TS1 of category 5 together with the list and technical sheets of the whole fleet.	TS2. GHG emissions 25% of the fleet to be used under the contract shall be vehicles that comply with the core TS1 of category 5. Verification: same as the TS1 of category 5 together with the list and technical sheets of the whole fleet.
Award Criteria	
AC1. GHG emissions Points will be awarded to the fleet to be used under the contract with proportion of vehicles (%) larger than the TS2, in proportion to the excess over the TS2. Verification: See above TS2	

8.2.2.3 Consequences

The new technical specification will require tenderers to have a minimum of these hybrid and alternative fuels technologies. This will likely entail larger investments, increasing the service cost.

8.2.2.4 Consultation questions

- Do you think it is technically and economically feasible to set minimum requirements on the fleet composition to ensure a proportion of best technologies?
- Would it be more appropriate to set a minimum GHG saving on the average GHG emissions of the fleet?

8.2.3 Air polluting emissions

8.2.3.1 Rationale

Similarly to the GHG emission criteria, the criteria on air polluting emissions and EURO compliance should be set as a proportion of the fleet. No specific data for waste collection trucks have been found. The average share of Euro VI heavy duty vehicles in the current fleets is 8% (data from ICCT, ACEA and OICA, EU-28 and EFTA average). More than 60% of the heavy duty vehicles using diesel is still equipped with Euro III (implemented in 2000), 11% with Euro IV (in 2005) and 15% complies with Euro V

Based on these facts, a minimum percentage of 40% of EURO VI is proposed for core and 60% for comprehensive level. This will stimulate the acceleration of the replacement rate to increase the share of Euro 6 waste collection trucks.

8.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Air polluting emissions All vehicles used in carrying out the service shall meet at least EURO V. 40% of vehicles shall have engines meeting EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>	<p>TS3. Air polluting emissions All vehicles used in carrying out the service shall meet at least EURO V. 60% of vehicles shall meet EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>
Award Criteria	
<p>AC2. Air polluting emissions Points will be awarded to the fleet to be used under the contract with proportion of vehicles (%) larger than the TS3, in proportion to the excess over the TS3.</p> <p>Verification: See above TS3</p>	
<p>AC3. Auxiliary units Points will be awarded based on the proportion of vehicles that comply with the TS2 of category 5.</p> <p>Verification: See TS2 of category 5.</p>	

8.2.3.3 Consequences

The suggested changes might entail an increase of the replacement rate, and therefore a larger investment.

8.2.3.4 Consultation questions

- Do you think it is feasible to set minimum requirements on the fleet composition to ensure a proportion of EURO VI and minimum EURO V compliance for the fleet?
- Do you agree with the percentages proposed? Are they affordable?

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8.2.4 Technical measures to reduce GHG and noise emissions, vehicle-manufacturing and battery related measures

8.2.4.1 Rationale

In general, many of the fuel and noise reducing measures described sections 7.2.4 and 7.2.5 are available on the market at low or no additional cost. In case of higher investment cost, this cost is easily compensated by the fuel savings reached as direct consequence of the application of these measures, or the criterion is proposed to be an award criterion. Since this category consists of the outsourcing of a public service, it is recommended to use the measures described sections 7.2.4 and 7.2.5 for the vehicles to be used under the contract.

The vehicle-manufacturing measures (section 7.2.6) could be requested to the fleet, awarding points based on the proportion of fleet to be used under the contract complying with the award criteria.

In the case of EV battery related measures (section 7.2.7), they could also be requested to the electric vehicles included in the offer.

8.2.4.2 Consequences

Consequences will be limited as result of the lower cost and relative short payback time. However, additional administrative burdens may be expected due to the verification of the criteria for the entire fleet.

8.2.4.3 Consultation questions

- Do you agree on the proposal to apply these sets of criteria to the entire fleet?

8.2.5 Route optimisation

8.2.5.1 Rationale

According to the information gathered in the Preliminary report (see section 5.6.3), there are commercially available software tools incorporating Computerised Vehicle Routing and Scheduling (CVRS) technology that could improve the modelling and optimisation of collection operations. This report also describes some examples of collection optimisation, where CVRS were able to reduce the fuel consumption from 5% to 15%. These models could be fed with data from Pay-as-you-throw systems or by means of weight systems installed in the trucks. There are also systems providing real time data of the bin fill level. A case study resulted in a reduction of the collection and hauling distances by 17%, the number of stops to collect containers is decreased by 14% and the operational cost (fuel consumption) reduced by 15%.

Therefore an award criterion is proposed to promote the use of these systems.

8.2.5.2 Proposed criteria

Core criteria	Comprehensive criteria
Award criteria	
AC11. Route optimisation	
Points will be awarded to those tenders offering route optimization systems incorporating Computerised Vehicle Routing and Scheduling (CVRS) technology. The route optimization shall comply with the minimum collection frequency required by the type of waste (e.g. bio-waste).	
Verification: the tenderer shall present a description of the system, including the way to collect the data to feed the model.	

8.2.5.3 Consequences

- This type of route optimization system will be promoted, which will need an additional investment, but the energy savings make it cost-effective.
- Some systems need to go beyond the fleet and the fleet operation, installing level sensors inside the bins.

8.2.5.4 Consultation questions

- Do you think these systems are worthy to reduce the fuel consumption?
- Is it possible to include criteria for the collection system, going beyond the boundaries of the fleet operation?

8.2.6 New vehicles

8.2.6.1 Rationale

A fleet can change over the duration of the contract. In order to maintain the level of environmental performance of the fleet or even continuously improving this environmental performance over time a CPC can lay down the requirements for new vehicles.

8.2.6.2 Proposed criteria

Core criteria	Comprehensive criteria
Contract Performance Clauses	
CPC3. New vehicles The purchase of new vehicle shall contribute to keep or increase the percentage of vehicles complying with TS WTW GHG emissions and with TS air pollutant emissions offered in the tender. The contractor will keep records which shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.	

8.2.6.3 Consequences

The tenderer might need to modify the internal procurement procedures.

8.2.6.4 Consultation questions

N.A.

9 CATEGORY 7: POST, COURIER AND MOVING SERVICES

9.1 Overview of the new EU GPP criteria

The tables below show a summary of the proposal for the EU GPP criteria of the new category 'post, courier and moving services'. The proposal is further described in the following sections. As for another services, an approach based on fleet composition is needed to make the criteria feasible and workable.

		Mobility services		
		Proposed criterion	Core	Compr
SC	1	Staff training on ecodriving and environmental management	X	X
	2	Emission reduction plan and GHG emissions monitoring	X	X
TECHNICAL SPECIFICATIONS	1	Emission reduction plan and GHG emissions monitoring	X	X
	2	GHG emissions	X	X
	3	Exhaust gas emissions	X	X
AWARD CRITERIA	1	Lower GHG emissions	X	X
	2	Cyclelogistics	X	X
	3	Exhaust gas emissions	X	X
	4	Zero tailpipe emission capability	X	X
CPC	1	Staff training on ecodriving and environmental management		
	2	Emission reduction plan and GHG emissions monitoring		

9.2 Criteria proposal

9.2.1 Optimized vehicle use

9.2.1.1 Rationale

The same rationale applies to all service categories.

9.2.1.2 Proposed criteria

Core criteria	Comprehensive criteria
Selection criteria	
<p>SC1. Staff training on ecodriving and environmental management</p> <p>Tenderers shall have in place a training program, including formal written procedures, ensuring that relevant staff is sufficiently trained to provide the service according to the environmental provisions included in the tender.</p> <p>The management staff involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - Be trained to identify and evaluate the available technologies and measures to reduce the WTW GHG emissions and air pollutants emissions (except for those operators using a fleet 100% non-motorised, i.e. cyclelogistics) - be trained in the monitoring and reporting procedures of the WTW GHG emissions <p>All drivers involved in carrying out the service for the duration of the contract period shall:</p> <ul style="list-style-type: none"> - be trained in a recognised institution on environmentally-conscious driving on a regular basis to increase fuel efficiency; - receive regularly information on their fuel efficiency performance (at least once per month); <p>Adequate training, with a minimum duration of 16 hours, shall be provided to all new staff working under the contract within four weeks of starting employment and an update on the above points, with a minimum duration of 8 hours, for all other staff at least once a year.</p> <p>Verification:</p> <p>The tenderer shall present records of these training measures.</p>	
Contract performance clause	
<p>CPC1. Staff training</p> <p>The service provider shall document and report yearly the amount (hours) and subject of training provided to each member of staff working on the contract to the contracting authority.</p> <p>The yearly staff training records shall be made available to the contracting authority for verification purposes. The contracting authority shall foresee rules for penalties for non-compliance.</p>	
Technical specification	
<p>TS1. Emission reduction plan and GHG emissions monitoring</p> <p>The tenderer shall provide an emission reduction plan with measures aimed at reducing the WTW GHG emissions and air pollutants emissions during the contract period. They will also provide the procedures to monitor and report progress of these measures and their impacts. The indicator used shall be GHG emissions of the service (applying a WTW approach), both in total per year and per tonne-kilometer or another unit that reflects the performance of the service.</p> <p>Verification: The tenderer will present the emission reduction plan and the GHG emissions monitoring and reporting procedure based on applying a WTW approach.</p>	

Contract performance clause

CPC2. Emission reduction plan and GHG emissions monitoring

The contractor shall implement the measures included in the emission reduction plan and monitor and report the WTW GHG emissions according to the procedure presented in their offer.

The contractor will keep records which shall be made available to the contracting authority. The contracting authority shall foresee rules for penalties for non-compliance.

9.2.1.3 Consequences

This type of optimization might require additional work for the operator, because it will affect its daily business and procedures, especially in terms of administrative efforts required. However, having these measures in place can also result in significant fuel consumption reductions and thus lower fuel cost.

9.2.1.4 Consultation questions

- Do you agree with the training proposed for both management staff and drivers?
- Do you find suitable the training hours proposed?
- Are there any specific characteristic of the postal and couriers services that requires a tailored wording of these criteria proposal?

9.2.2 GHG emissions

9.2.2.1 Rationale

The rationale for this criterion proposal can be extracted from the different sections addressing LCV and L-category vehicles. Based on the information available, it seems feasible to set a share of top-10 of the most fuel efficient ICEVs as defined in the core TS of category 1 to postal and courier services. It is proposed that 12% of the fleet complies with the core TS1 for category 1 at core level, and 25% at comprehensive level. The comprehensive TS of category 1 is proposed as part of the comprehensive technical specification. The proposed percentages are based on a typical replacement rate of 12% (average age of the fleet 8 years) for core and a higher replacement rate of 25% for the comprehensive, in line with the percentages proposed for mobility services.

Cyclelogistics has demonstrated its capability to operate in urban deliveries. According to CIVITAS 42% of all motorized trips in urban areas could be shifted to logistics by bicycle (this corresponds to 25% of all trips). (EPOMM, 2012) Also a deliverable within the project Cyclelogistics ahead (Chiffi & Galli, 2014a) indicates a high potential for municipal document delivery, like small documents, internal mail and consultation documents to residents, to shift to cargo bikes. However, a criterion formulated as a technical specification could raise difficulties in those cities with few cyclelogistics operators; hence it is proposed as an award criterion at core level. Only in those cases where there are enough operators, it is proposed as technical specification at comprehensive level.

In the case of the Urban Consolidation Centres, they are identified as an essential system to increase the penetration of cyclelogistics and electric vehicles in urban areas. Therefore, it is proposed to be included as a valid way for tenderers to comply with the criteria. This means that the service provider might outsource the urban delivery to an urban consolidation centre that fulfils the criteria.

9.2.2.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical specification	
<p>TS2. GHG emissions This TS will apply to vehicles used in urban deliveries.</p> <p>LCV 12% of the fleet to be used under the contract shall be vehicles that comply with the core TS1 of category 1.</p> <p>L-category vehicles 12% of the fleet to be used under the contract shall be electric vehicles.</p> <p>Verification: same as core TS1 of category 1 together with the list and technical sheets of the whole fleet.</p>	<p>TS2. GHG emissions This TS will apply to vehicles used in urban deliveries.</p> <p>LCV 12% of the fleet to be used under the contract shall be vehicles that comply with the comprehensive TS1 of category 1. 25% of the fleet shall be vehicles that comply with the core TS1 of category 1.</p> <p>L-category vehicles 25% of the fleet to be used under the contract shall be electric vehicles.</p> <p>Cyclelogistics This TS will apply to vehicles used in urban deliveries. In those cities where the topography and the</p>

	<p>urban infrastructure are suitable, and there are sufficient cyclelogistics operators, the tenderer shall offer a service fleet composed of cycles and cycle trailers, which may include electrically power assisted cycles.</p> <p>This criterion may be fulfilled by means of a partnership with an urban consolidation center whose fleet is composed by bikes and cargo bikes.</p> <p>Verification: same as core TS1 of category 1 together with the list and technical sheets of the whole fleet.</p>
<p>Award criteria</p>	
<p>AC1. GHG Emissions</p> <p>Points will be awarded to those tenders offering a fleet to be used under the contract with an a percentage higher than the TS2, in proportion to the excess over the TS2</p> <p>This criterion may be fulfilled by means of a partnership with an urban consolidation center whose fleet complies with the TS2</p> <p>Verification: The tenderer will present the specifications of the service fleet</p>	
<p>AC2. Cyclelogistics</p> <p>This AC will apply to vehicles used in urban deliveries in postal and courier services.</p> <p>In those cities where the topography and the urban infrastructure are suitable, points will be awarded to tenders offering a service fleet composed of cycles and cycle trailers, which may include electrically power assisted cycles.</p> <p>This criterion may be fulfilled by means of a partnership with an urban consolidation center whose fleet is composed by bikes and cargo bikes.</p> <p>Verification: The tenderer will present the specifications of the service fleet</p>	

9.2.2.3 Consequences

The suggested changes might entail an increase of the replacement rate, and therefore a larger investment.

9.2.2.4 Consultation questions

- Do you think it is economically feasible to set minimum requirements on the fleet composition to ensure a proportion of low GHG emission vehicles?
- Would it be more suitable to set an average of GHG emissions of the fleet?
- Do you agree with the percentages proposed?
- Do you agree on the criteria proposed to promote cyclelogistics? Would it be feasible to be required as comprehensive TS in those cities equipped with appropriate infrastructure and sufficient number of cyclelogistics operators?

9.2.3 Air polluting emissions

9.2.3.1 Rationale

The rationale for this criterion proposal can be extracted from the different sections addressing LCV, HDV and L-category vehicles.

9.2.3.2 Proposed criteria

Core criteria	Comprehensive criteria
Technical Specification	
<p>TS3. Air polluting emissions</p> <p>All HDV used in carrying out the service shall meet at least EURO V. 40% of HDV shall meet at least EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender. All LCV used in carrying out the service shall meet at least EURO V. 40% of LCV shall meet EURO VI. All L-category vehicles used in carrying out the service shall meet at least EURO 3. 25% L-category vehicles shall comply with EURO 4.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>	<p>TS3. Air polluting emissions</p> <p>All HDV used in carrying out the service shall meet at least EURO V. 60% of HDV shall meet at least EURO VI. Where vehicles are not certified as meeting EURO V or higher, but technical after-treatment has achieved the same standard, this should be documented in the tender. All LCV used in carrying out the service shall meet at least EURO V. 60% of LCV shall meet EURO 6. 10% of LCV shall comply with the Euro 6d-TEMP standard. All L-category vehicles used in carrying out the service shall meet at least EURO 3. 50% L-category vehicles shall comply with EURO 4.</p> <p>Verification: The tenderer shall provide the technical sheets of the vehicles where emission standards are defined. For those vehicles where technical upgrade has achieved above mentioned standard the measures must be documented and included in the tender, and this must be approved by an independent third party.</p>
Award Criteria	
<p>AC3. Air polluting emissions</p> <p>Points will be awarded to those tenders offering a fleet to be used under the contract with an a percentage higher than the TS3, in proportion to the excess over the TS3</p> <p>Verification: See above TS3</p>	
<p>AC4. Zero emission capability</p> <p>Points will be awarded to tenders offering a service fleet with at least 12% of vehicles that can demonstrate at least 40 km of zero tailpipe emission capability, in proportion to the excess over this threshold.</p> <p>This criterion may be fulfilled by means of a partnership with an urban consolidation center whose fleet complies with zero emission capability</p>	

<p><i>Note: this criterion would be only relevant as core criterion and not as comprehensive, since the comprehensive GHG emissions technical specification already selects zero emission capable technologies.</i></p>	
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Verification: See above TS3

9.2.3.3 Consequences

The suggested changes might entail an increase of the replacement rate, and therefore a larger investment.

9.2.3.4 Consultation questions

- Do you think it is economically feasible to set minimum requirements on the fleet composition to ensure a proportion of EURO VI/6 and minimum EURO V/5 compliance for the fleet?
- Do you agree with the percentages proposed?

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List of abbreviations

AC – Award criterion/a
CPC – Contract Performance Clause
CNG - Compressed Natural Gas
CO₂ - Carbon dioxide
CPV - Common Procurement Vocabulary
CVD - Clean Vehicle Directive
dB - decibels
DG - Directorate General
EEV - Enhanced environmentally friendly vehicle
EU - European Union
GHG – Green House Gas
GPP - Green Public Procurement
GSI - Gear Shift Indicator
GWP - Global Warming Potential
HDV - Heavy duty vehicle
ICEV – Internal Combustion Engine Vehicle
ITS - Intelligent Transport System
LCV - Light commercial vehicle
LDV - Light duty vehicle, i.e. a car or an LCV
M₁ - Cars
M₂ - Small buses
M₃ - Large buses
NACE - Nomenclature statistique des activités économiques dans la Communauté européenne
N₁ - LCVs
N₂ - Heavier commercial vehicles
N₃ - Heavy commercial vehicles
NEDC – New European Driving Cycle
NMHC - non-methane hydrocarbons
NO_x - Oxides of nitrogen
NRMM - Non-road mobile machinery
PM - Particulate matter
PRODCOM - PRODUCTION COMMUNAUTAIRE
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals
RES – Renewable Energy Source
RDE - Real driving emission
SC – Selection criterion/a
SORT – Standardised On-Road Test cycles

TCO – Total Cost of Ownership
TPMS - Tyre Pressure Monitoring System
TS - Technical Specification
TTW – Tank to Wheel
WTT – Well to Tank
WTW – Well To Wheel

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JRC Mission

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

*Serving society
Stimulating innovation
Supporting legislation*

