Guidelines for Topten Public Procurers

Cars

Steffen Hepp, July 2021

Why follow Topten criteria?

- Topten.eu/pro (www.topten.eu/pro) is a European web portal helping buyers, professionals, public procurers and large buyers to find the most energy efficient products available in Europe. The products are selected and updated continuously, according to their high energy and environmental performances, independently from the manufacturers.
- The Topten criteria below can be inserted directly into tendering documents.
- All cars displayed on www.topten.eu meet the criteria contained in these guidelines. Procurers can therefore use the website to check the availability and assortment of products currently on the market, which meet the **Topten selection criteria for Cars**.
- Topten.eu/pro links to national partners Topten Pro websites and was developed under the Topten Act project, supported by the European Union through Horizon 2020 programme.

Electric or internal combustion engine?

When purchasing passenger cars and commercial vehicles, we recommend **to choose electric vehicles first**. It is now the right time to invest into a more environmentally friendly and future-ready technology.

Hence, electric vehicles are first choice. Only if electric cars cannot be chosen given a particular set of specifications, then the selection criteria for combustion cars described in this document shall apply.

Further remarks on Electric Cars:

As concerns the selection within the product category ‘electric cars’, Topten does not yet define any minimum (technical and energy-efficiency) requirements to be included in the tendering documents. However, it strongly encourages buyers to include environmental factors as selection criteria in their decision making.

In order to do so, a simple traffic light colour system has been developed by the Swiss Association for Traffic and Environment (ATE) in collaboration with the EMPA (Swiss Federal Laboratories for Materials Testing and Research).

- green: good
- orange: medium
- red: below average

Each of the following three aspects is rated and colour-coded according to its performance:

1. Environmental impact of battery production (using battery capacity in kWh)
2. CO_2 in g/km

3. Noise in dB(A)

The best vehicles along with their rating can be found on Topten.eu (electric cars / plug-in hybrids).

How much can you save?

Considering cars and vans with combustion engines running on either diesel, petrol or car natural gas (CNG), including hybrids, listed on www.topten.eu, and the following assumptions, it is possible to achieve the savings indicated in the next table.

Assumptions
- Lifetime mileage: 100.000 km
- Fuel price: 1,2 €/litre of petrol and 1,1 €/litre of diesel

	Topten Model	Inefficient Model	Topten Model	Inefficient Model
Category of car	Small	Small	Van 6 or more seats	Van 6 or more seats
CO_2 Emissions	114 g/km	172 g/km	137 g/km	210 g/km
Fuel consumption	5 l/100 km petrol hybrid	7,6 l/100 km petrol	6 l/100 km petrol hybrid	9,3 l/100 km petrol
CO_2 Emissions (100.000 km)	11,4 t	17,2 t	13,70 t	21 t
Fuel costs (100.000 km)	6.000 €	9.120 €	7.200 €	11,160 €
Savings over 100.000 km	**34% CO_2 / unit 3.120 € / unit**		**35% CO_2 / unit 3.960 € / unit**	

Choosing a Topten hybrid model can save more than 3.000 € over the lifespan of a small car, compared with an inefficient model on the market. Smaller cars generally consume less fuel but even for vans with 6 seats, a Topten hybrid model can save almost 4.000 €, in comparison with an inefficient van model.

CO_2 emissions, expressed in g/km, are an important environmental impact to take into account. It is directly linked to fuel type and consumption. In the examples above, Topten models emit around 35% less than inefficient car models.

Different categories of Topten cars, presented according to car size and fuel types, can be found on www.topten.eu. All the Topten models allow large energy and CO_2 emissions savings, and have as well lower environmental impacts, such as noise and other air pollutants.

Procurement criteria

The following criteria can be inserted directly into tendering documents. The Topten selection criteria and the product lists are updated regularly. The newest versions are always available at **www.topten.eu/pro**.

Combustion cars:

The specifications for cars and vans are based on the environmental rating system developed by the Institut für Energie und Umweltforschung (IFEU), by order of the German Office for Environment (Bundesumweltamt) and is used by the Swiss Association for Traffic and Environment (ATE). This multi-criteria rating system takes into account the greenhouse gas, air pollutant and noise emissions for each vehicle type and awards a cumulative score (Eco Points) reflecting environmental performance. The better the environmental performance, the higher the score of Eco Points.

The following technical specifications only relate to cars and vans with a combustion engine, which run on petrol, diesel or natural gas, including hybrid models. Only vehicles with CO_2 emissions up to 150 g/km (180 g/km for vans) are taken into consideration.

SUBJECT: SELECTING THE RIGHT COMBUSTION CARS

TECHNICAL SPECIFICATIONS

1. Pollution index

All car and vans must achieve a minimum score of Eco Points, as shown in the table below, per vehicle category, and not exceed a maximum allowed emission rate. The calculation scheme for the Pollution Index determination is explained further below.

Vehicle category	Vehicle length (VL)	Minimum Eco Points
Mini cars	VL < 3,6 m	52,8
Small cars	3,6 m ≤ VL < 4,0 m	58,8
Compacts	4,0 m ≤ VL < 4,4 m	55,0
Middle class	4,4 m ≤ VL < 4,8 m	44,5
Upper middle class	4,8 m ≤ VL < 5,0 m	31,0
Van with 5 seats	VL ≥ 5,0 m	42,5
Van with 6 or more seats	VL ≥ 5,0 m	30,0

Status: July 2021 | List of minimum required eco points is updated yearly. Latest values available online.

Calculation of the ATE Pollution Index (expressed in Eco points)

The next table indicates the four types of environmental impacts that contribute to the determination of the Pollution Index.

	Environmental impact	Weighting
A	CO_2 emissions	60%
B	Noise emissions	20%
C	Air pollutants affecting human health	15%
D	Nature pollution (ex. acid rain)	5%

A - CO_2 emissions impact

CO_2 emissions released by vehicles are rated with a linear function. For a CO_2 emissions of 60 g/km a score of 10 points will be granted. Zero (0) points are assigned to cars with

- 150 g CO_2/km (cars with 5 or less seats)
- 180g CO_2/km (vans with more than 5 seats)

The specific formulas for calculating this environmental impact are:

Cars with ≤ 5 seats	Eco points = (150 – x) * 0,1111	x = CO_2 emissions, in g/km
Vans with > 5 seats	Eco points = (180 – x) * 0,0833	x = CO_2 emissions, in g/km

B - Noise emissions impact

The noise rating scale runs linearly between 10 points, when noise levels correspond to 65 dB(A) and 0 (zero) point when noise emissions are equal to or higher than 75 dB(A), as shown below:

dB(A)	65	66	67	68	69	70	71	72	73	74	75
Points	10	9	8	7	6	5	4	3	2	1	0

C and D - Air pollutants affecting human health and nature pollution impacts

Euro standards set the emission limits for several pollutants affecting human health and nature, as well as ecosystems in general. These two impacts are scored according to the emission class (Euro 6d /6d-TEMP) and type of fuel used by the vehicle.

Emission class[1]		**Human health impact[2]**	**Nature impact[3]**
Euro 6d-TEMP	Diesel	6,64	3,28
Euro 6d-TEMP	Petrol	9,35	7,6
Euro 6d	Diesel	7,6	5,2
Euro 6d	Petrol	9,35	7,6

Final score, expressed in Eco points

The separate scores of each single environmental effect categories are weighted, added up and multiplied by 10, to obtain the final score.

Eco points = [(A score * 0,6) + (B score * 0,2) + (C score * 0,15) + (D score * 0,05)] *10

Verification

Bidders must supply technical data and test results for the vehicles tendered to demonstrate performance in each of the categories covered by Eco Point rating, accompanied by the above calculation indicating the Eco Points achieved.

2. Particle filter

All diesel vehicles must be fitted with a particle filter (DPF).

[1] Emission classes are set by Directive (CE) nº 692/2008
[2] Air pollutants considered are nitrogen oxides (NO_x) and non-methane hydrocarbons (HCNM)
[3] Environmental pollution is related to the particulate pollutants emitted by exhaust pipes

NOTES ON IMPLEMENTATION

To increase savings and reduce environmental impact, procurers should evaluate life cycle costs when tendering for cars and vans. Thus, it is advisable to include in the tender a costing exercise - even if simple - for the product life cycle costs.

Example of a breakdown costs table, to be filled in by bidders:

	Information details	Different unit costs in € (excluding tax)	Total cost in € (excluding tax)
Delivery			
Warranty			
Use*	Fuel consumption x km x nº units	Fuel cost**	
	CO_2 emissions (kg/km) x km x nº units	0,035 €/kg	
	NO_x emissions (g/km) x km x nº units	0,0044 €/g	
	HCNM emissions (g/km) x km x nº units	0,001 €/g	
	Particulate emissions (g/km) x km x nº units	0,087 €/g	
Maintenance			
Recycling and disposal***			

* Example of how use costs can be determined during the usage phase, according to Directive No. 2009/33/EC (Table 2 of the Annex). Other information on glossary, costs per km over the vehicle lifetime, by typology, and other calculating tools in http://ec.europa.eu/transport/themes/urban/vehicles/directive/.

** Bidders must show the calculation of the average fuel consumption per km (if necessary, conversion factors are given in Directive Nº 2009/33/CE -Table 1 of the annex).

*** Figures to document this line can include costs related to vehicle change by similar or different car range.

Advice and support

If you would like further assistance in using the information presented here in your own procurement actions or more information on Topten Pro contact your national Topten team (find it on Topten.eu).

The European Commission's Green Public Procurement website contains valuable legal and practical guidance together with procurement criteria for a range of commonly procured products and services.

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