

OICA Position for the next steps in the EFV project

WP.29 established an informal group under GRPE¹ to review the feasibility of the proposed Environmentally Friendly Vehicle (EFV) concept (evaluation method, holistic approach). Taking the idea of world wide harmonisation into account, the applicability of the EFV concept needs to be considered for all regions of the world. Therefore following work packages are foreseen:

1. The available literature and concepts, including regulations and standards, shall be screened and analysed.
2. In a first step energy efficiency and CO₂ emissions will be considered and assessed on the basis of an integrated „well-to-wheels“ approach.
3. The feasibility of the successful development of a harmonised evaluation method should be examined and assessed.

OICA has actively supported this activity² to develop a worldwide harmonised scheme for an EFV.

In preparation for starting step 1 (i.e. the available literature and concepts including regulations and standards should be screened and analysed), OICA considered the available and representative tools for making an analysis of the effectiveness of any potential EFV scheme and showed how a SWOT (Strength, Weakness, Opportunity, Threat) analysis can be used to provide an appraisal of potential EFV schemes³.

The industry input was summarised in a Draft Feasibility Statement to EFV⁴. This paper was the basis for the Background Document⁵ and Feasibility Statement for the development of a methodology to evaluate Environmentally Friendly Vehicles⁶. Finally, these two documents contain the summary of the main output of the EFV informal group.

The extensive work done for the feasibility study showed that for an assessment of different EFV concepts, it is necessary to define the target group (fleet customers, private customers, NGOs, public procurement, interested public). Following this study, only two purposes have a high impact on potential target groups:

¹ Draft terms of reference for the establishment of an informal group to develop an evaluation concept for Environmentally Friendly Vehicles (EFV), WP.29-144-17, March 2008

² OICA analysis to support the development of a scheme for an Environmentally Friendly Vehicle (EFV), EFV-01-01, June 2008

³ SWOT Analysis of Different Approaches for an Environmentally Friendly Vehicle (EFV), EFV-01-02, June 2008

⁴ ACEA Input to Environmentally Friendly Vehicles (EFV), Draft Feasibility Statement, EFV-04-02, June 2009

⁵ Background document regarding the feasibility statement for the development of a methodology to evaluate Environmentally Friendly Vehicles (EFV), GRPE-58-02, June 2009

⁶ Feasibility Statement for the development of a methodology to evaluate Environmentally Friendly Vehicles (EFV), GRPE-58-03, June 2009

Potential target group	Purposes	Level of feasibility
Local, regional, national, governmental bodies	Information systems for public, private procurement	High
Customers	Voluntary information systems for purchasing decisions and raising interest in EFV	High/Very High

A crucial result based on the GRPE discussion is that such an approach should be used as an information system on a voluntary basis.

This concept cannot be based on or result in a new regulation in particular for the type approval of the vehicles, and therefore should be based on existing regulations related to environmental matters.

Theoretically, the environmental profile of a vehicle could be based on a wide range of indicators mentioned in chapter 4 of the background document (all types of emissions to air, use of materials / water / resources / substances etc.) but from a feasibility perspective the different indicators are quite diverse and difficult to capture in a one-size fits all approach (no single score).

The feasibility study clearly emphasises these results. The study has analysed different concepts and methodologies (via the SWOT analysis) for the environmental performance of a vehicle. None of the investigated concepts is able to assess and evaluate the environmental performance on a global harmonised level due to the following reasons:

- An aggregation of different environmental aspects to a single score would be based on subjective weightings that would lead to arbitrary and confusing changes in definitions.
- The environmental profile of a product has always to be interpreted on the background of different regional and temporal environmental circumstances.
- Data are not available for all environmental aspects and / or are measured in different ways depending on the region or regulations / legislation.

For example, whereas greenhouse gas emissions or material use address the global effects of climate change and resource depletion, other indicators address regional or even specific local effects. Even more, there are fundamental temporal differences within even one indicator. For example, looking at the electricity generation for an electric vehicle even the well-to-wheel CO₂ emission differ between regions (e.g. captured or not in an Emission Trade Scheme avoiding an increase in CO₂ emissions, change in electricity generating strategy over time). This means that the same vehicle driving around a region over a certain time will have a continuously changing environmental profile. This makes a robust definition of an EFV impossible.

Looking at the SWOT analysis (chapter 4.3 of the background document) all different approaches have significant weaknesses. Either the approaches are too simple and / or not comprehensive enough to define an EFV or they are too complicated for the targeted groups and their applications. However, the aggregation of different environmental aspects to a single score is not at all recommended due to the fact that environmental indicators have to be interpreted based on the local or temporal situation and there is no scientific / technical justification for a set of weighting factors. A flexible approach allowing regional modification within a range of globally harmonised weighting factors is also not feasible, as this could mean

local adjustment factors changing over time, differing from one town or area to another and leading to confusion and instability for any applications.

In consequence, and according to ISO14040, single scores for defining EFVs shall not be used for comparative assertions. Also the term "environmentally friendly" shall not be used according to ISO 14021.

Therefore, GRPE / WP.29 decided that any approach for an EFV has to adhere to the following guidelines:

- **address clearly the approach as a customer information system on a voluntary basis**
- **ensure a technology and segment neutral instead of a technology and segment prescriptive approach**
- **concentrate on already existing legislation and focus on the crucial requirements in order to avoid misleading and an information overload**
- **take into account national or regional differentiation in order to reflect local/regional legislation and requirements**
- **avoid simplification of complex indicators or impacts in a single score⁷**
- **define a realistic and affordable EFV threshold concept from a customer perspective (a broad share of existing vehicles in all segments)**

Additional work shall include the evaluation of the interface between an EFV and an "environmentally friendly infrastructure" (e.g. clean fuels and electricity).

From the 4th EFV conference can be summarised that:

1. Multiple environmental aspects including noise levels, alternative fuels, drive train efficiency, electric power sourcing and manufacturing efficiency all contribute to developing a vehicle that could be termed as truly environmentally friendly. While many different concepts and fuels are being considered to develop EFVs, there is no single solution.
2. "clean vehicles" is only a relative term as an overall "well to wheel" approach shows that in all cases there was energy consumption and emission of greenhouse gases and pollutants during the energy production. The ultimate objective would aim at cleaner and sustainable energy generation.
3. Harmonised regulation and the development of EFVs need to go hand in hand.
4. There is a recognised need for continuing collaboration across industry and between countries including in the development of standards and consumer education.

⁷ OICA comment: One clear result of the previous GRPE and the informal EFV group had been the consensus to "avoid simplification of complex indicators or impacts in a single score". Thus the EFV group concluded during the EFV conference in Delhi, that a single score principle is not feasible. The group committed to develop an EFV-scheme on the basis of the conclusion paper from November 2009 including the statement, that a single score is not feasible. The reason for this conclusion is that an aggregation of different environmental aspects to a single score (e.g. 40% CO₂, 30% emissions, 20% recycling, 10% noise) is always based on arbitrary and/or biased subjective weightings. Furthermore, a single score is counterproductive if it comes to information systems as the base information (e.g. CO₂ performance) is hidden in a single score. Thus, we **strongly oppose** taking the route of a **single score**.

5. There is a need for an integrated approach to address the impact of vehicles on the environment as an important part of transport. Many of the new types of EFVs need additional infrastructure for energy distribution that is critical to the deployment of such vehicles, and it was important to provide a policy road map for this.
6. While it was difficult from a technical and scientific point of view to arrive at a holistic definition of an EFV, efforts should continue to arrive at the best possible solution.

The chair of the EFV Informal Group has made the following recommendation for a next step: In view of all the above aspects, it is suggested that as a first step, the following parameters could be considered for assessing the environmental friendliness of vehicles:

1. CO₂ emission: The factor has a direct impact on the target groups. Also substantial regional, worldwide, good quality data is available. Data is also regularly updated.
2. Noise: It has a direct impact on consumers and other road users. Good quality data is available. It is topic which has a high relevance at present.
3. Regulated pollutants: Has a high relevance. Good quality regional data is available and data is updated regularly. Has a high local environmental impact.
4. Recyclability: Relevant to environment. Regional good quality data is available.

OICA's answer and position:

Item 1:

Follow the ToR (In a first step energy efficiency and CO₂ emissions will be considered and assessed on the basis of an integrated well-to-wheel approach) and the summary of the 4th EFV conference.

Automotive industry can only provide tailpipe emission data. The question of including well-to-tank emissions needs to be re discussed because these (1) depend too much on the specific situation and may even differ from one pump/charging station to the other, (2) change over time, (3) have data problems (availability, uncertainty over the world) and have been identified being too complex for this purpose. These aspects may be better addressed separately when discussing energy infrastructure.

Items 2 and 3:

The topics noise and regulated emissions should be based on existing regulations.

Item 4:

If it comes to recyclability it is clear that this needs to refer to ISO 22628 only. However, it might be in the end not the most important item to include looking at the environmental relevance: EU funded, ISO 14040 reviewed Life Cycle Assessment studies showed that it makes in the end no difference to the environment as long as the recycling of metals is done. So this point is not a question of the vehicle itself but the operational practises in the regional end-of-life vehicle business.

In the meantime methods for defining the 4 criteria have been proposed by the EFV chair together with weighting factors. OICA's answer to that up-dated proposal is:

- For the parameter "CO2 or GHG" it is not clear on what basis the numbers for the assessment percentages (thresholds) are derived and to which test cycle/procedure these numbers refer. As an EFV definition is to be done for an information system it would be perfectly sufficient in a first step to simply state the CO2 emission of the vehicle.
- For the parameter "emissions" it is again not clear what the referenced global test cycle is. As the regional limits and partly test methods and procedures are different from region to region it is recommended to stay with the currently applicable, regional emission limits/procedures and use that parameter as a pre-requisite to gain the EFV attribute.
- For the parameter "noise" - the thresholds seem to be selected in a non technology neutral way with the low numbers being unrealistic for most vehicles. It is recommended to stay with the current, regional noise limits and use that as a pre-requisite to gain the EFV attribute.
- The parameter "recycling" is not based on LCA findings showing that a higher recycling rate does not result in an environmentally significant advantage (see EU funded LIRECAR study). The reference to recycling strategies and recycling manuals and coding is not a suitable differentiator/criterion for an EFV. Typically, the strategy is the same for all manufacturers in a region. For example, in Europe a post-shredder treatment strategy is the general automotive strategy. This strategy does not require specific manuals (although provided via IDIS due to legal reasons) nor coding. In consequence, this criterion is no differentiator. The use of "environmentally friendly materials" is too difficult to assess (a material can be environmentally favourable in one vehicle application but negative in another one, e.g. if the alternative material is lighter). It is commonly agreed in the LCA community that "environmental friendliness" is no inherent characteristic of a material but something to be assessed based on the specific application. In summary it looks like the best approach would be to exclude this parameter at least for the time being as more work is needed and it looks like the identified aspects have no real environmental relevance for the definition of an EFV.

Furthermore the chair refers to clause 5.1 with the 3 principle options:

1. Selection of the most suitable concepts from all existing approaches or tools
2. Combination of two or more of the existing approaches or tools
3. Definition of a new EFV concept, not comparable to the existing approaches or tools

OICA refers to the clear result of the previous GRPE informal EFV group, i.e. the consensus to avoid simplification of complex indicators or impacts in a single score. The reason for this conclusion is that an aggregation of different environmental aspects to a single score is always based on arbitrary and/or biased subjective weightings. Furthermore, a single score is counterproductive if it comes to information systems as the base information (e.g. CO₂ performance) is hidden in a single score. Thus, we strongly recommend following the agreed guideline not to go the route of a single score and therefore recommend development of a new EFV concept as stated in option 3 above.

The focus on already existing legislation and standards is very much welcomed.
