

Position paper

Umwelt, Technik und
Nachhaltigkeit

Design Product Environmental Footprint (PEF) in a reasonable and consistent way!

Dokumenten Nr.
D 0689

Datum
11. Mai 2015

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Summary and conclusion:

Under the heading of Product Environmental Footprint (PEF), the European Commission plans development of a uniform method for an environmental assessment of products based on a lifecycle analysis approach. Industry broadly supports methods which contribute to further development of lifecycle analyses, establish a balance between costs and benefits, and secure relevant results for environment and consumers. Nevertheless, this must always be done on a voluntary basis.

However, experience to date with the product-specific pilot projects has highlighted serious methodological shortcomings in the PEF concept. PEF favours comparability over accuracy, which leads to a host of generic assumptions as well as vague definitions of system limits and reduces the supposed relevance and general applicability of the PEF pilot projects. Hence, the European Commission's stated objective of using the pilot projects to verify and discuss whether a PEF increases the quality of information for customers is already strongly constrained if not completely missed. Rather, an "ideal" comparability along the entire lifecycle cannot be achieved through a static one-size-fits-all approach.

Against this background, it is unclear whether the PEF approach can fundamentally underpin the European Commission's current policy objectives, since it will become evident already in the pilot phase that the PEF methodology shows up a large number of inadequacies. With the current PEF approach, the European Commission does not achieve any improvements as compared with the present situation using existing instruments for environmental product information and accordingly does not deliver any consistent and reasonably workable added value.

Therefore, if PEF is to become a meaningful, voluntary and internationally accepted instrument for environmental product assessment, intensive work is still needed to fine-tune many methodological details.

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1. Current situation: existing concepts, objectives of PEF and open questions

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a. A variety of concepts for information on the environmental impact of products are established and successful across the EU

The ISO 14000 series of standards and above all the ISO 14020 subseries sets out central rules on how product-related environmental information can be developed and used on a voluntary basis. These rules have proved their worth in practice and are in part internationally recognised. Examples include the “Blue Angel” eco-label (in accordance with ISO 14024) as well as the Environmental Product Declaration (EPD) in accordance with ISO 14025. In addition, there are interfaces with the product-oriented environmental management standards in the ISO 14040 series.

With the Ecodesign Directive 2009/125/EC and the energy consumption labelling scheme, an EU-wide regulation and labelling system for products with an energy consumption relevance is already established which reduces the environmental impact of these products.

b. European Commission: PEF method as an environmental, harmonised product assessment

On 9 April 2013 the European Commission published the communication “Building the Single Market for Green Products – Facilitating better information on the environmental performance of products and organisations”. Among other things, it centres on the development of “Product Environmental Footprints (PEF)”. PEF should ultimately constitute a method for harmonised identification of and information on the environmental impact of products. In this regard, it is suggested that PEFs can be classify products into “better” or “worse” through the setting of benchmarks for a defined category with respect to environmental impact. Target audiences for PEF should be customers in both B2B and B2C (end consumers) product flows. Annex II of the communication sets out guidelines for calculating PEFs based on lifecycle analyses (LCAs) developed by the European Commission’s Joint Research Centre (JRC) on the basis of pilot projects and published on 17 December 2012¹.

c. Pilot projects: product category rules and communication instruments

The European Commission’s PEF method foresees the development of product category rules (PEFCR) in the

¹ Siehe unter <http://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32013H0179&from=EN>

framework of pilot projects for selected products. In the last analysis, PEFCRs are the basis for specific product lifecycle analyses. Product pilot projects are expected to draw up appropriate rules that can be applied to assess comparable products within three years, i.e. by 2016. Fourteen pilot projects were launched on 1 November 2013 in a “first wave”, followed by a further eleven pilot projects on 2 June 2014 in a “second wave”. The first wave comprises from the non-food area products in sectors as diverse as batteries and accumulators, intermediate paper products, metal sheets, T-shirts, thermal insulation, stationery, IT equipment and leather. In the food area, pilot projects in the second wave cover product groups such as beer, coffee, wine, dairy, meat and fish. Companies, environmental groups (NGOs), scientific institutions and consumer associations are involved in the pilot projects.

In addition, pilot projects are intended to draw up suitable instruments for communication on the relevant PEFs.

d. Continuing lack of clarity about the voluntary character of PEF and how it fits into the existing arsenal of instruments

Hitherto the European Commission has not yet made it clear that application of the PEF methodology will remain voluntary in any event and how it should interact with existing instruments on environmental product information.

2. Requirements for PEF to be designed in a consistent and reasonable way

a. PEF must be complete, consistent and voluntary

In industry’s view, the PEF initiative offers the potential to contribute to a voluntary, harmonised method for assessing the environmental impact of certain products. However, it is an absolute precondition that the current serious methodological problems and shortcomings in the preparation of PEFs are cleared up. For product assessment in the framework of the PEF methodology, indicators and impact categories used must be scientifically recognised, meaningful and substantiated, for instance greenhouse gas potential. Only such indicators and categories are suitable for reliable consumer information. In addition, it should be remembered that not all impact criteria have to be developed in parallel, so that a summary should be seen in a critical light.

Up to 15 impact categories as provided for under PEF generate additional complexity instead of concentrating on central findings. Moreover, many methods used to carry

out the impact assessment have not yet been accepted universally by scientists as being robust, for instance water consumption. In addition, insufficient data are available for many impact assessment methods, e.g. for respiratory inorganics, land use with reference to SOM, toxicology in accordance with the USEtox model. The resulting data gaps lead to false results so that the comparability of products is not a given.

As in the case of ISO standards, appropriate cut-off points must also be permissible in order not to hamper the workability of eco-audits.

A review panel is a binding requirement for the publication of PEF studies. This should be rejected on the grounds of resources. A comparable LCA is only possible if the upstream data (where significant) have been calculated using uniform rules, e.g. with regard to allocation.

Lastly, recovery flows including multiple recycling operations must be completely and accurately captured.

b. PEF must fit in with internationally recognised instruments

PEF must blend in with existing, internationally recognised standards for measuring and communicating the environmental impact of products (see point 1a) and be consistent with international standards (such as ISO 14040, ISO 14044 and ISO 14025). Two examples in this area:

- i. With the Ecodesign Directive 2009/125/EC and the energy consumption labelling scheme, an EU-wide regulation and labelling system for products with an energy consumption relevance is already established. A possible extension to include eco-audit impact categories would be counterproductive and would not add any value.
- ii. For the area of “construction products”, an established instrument is already being applied in the form of the Environmental Product Declarations (EPDs). EPDs for construction products are based on the European standard EN 15804, which was drawn up by CEN/TC 350 on the basis of a mandate from the European Commission. In the area of construction products, EPDs have become established on a broad basis in recent years and in all probability will also be taken as a reference for the new basic requirement 7 “Sustainable use of natural resources” for implementation of the construction products regulation in practice. Now that they are established, these Environmental

3. Serious methodological challenges

A position paper by the Technische Universität (TU) Berlin dated 17 January 2014, commissioned jointly by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) and the German Federal Environmental Protection Agency (UBA), identified serious methodological shortcomings in the method for drawing up PEFs published by the European Commission's Joint Research Centre on 17 December 2013 (see point 1b.). BDI has endorsed the substance of this position paper.

a. PEF rules in contradiction with ISO 14040 and ISO 14044

The most important points for criticism are that, whereas the harmonisation objective of PEF is good in theory, it has a counterproductive effect in practice. This is because the PEF rules are sometimes in contradiction with ISO 14040 and ISO 14044:2006 and sometimes unsubstantiated by the science. Given that the PEF methodology defines only a subset of the established toolbox for eco-auditing in accordance with ISO 14040ff, the scope and possibilities for adjusting the methodology to reflect different objectives are sometimes drastically curtailed. In some cases, this exacerbates a modelling of reality in line with the issue.

b. The results of an eco-audit must ultimately be realistic, reasonable, workable and verifiable

Yet a sufficiently accurate picture of reality on the one hand and an acceptable effort for collecting the data this requires on the other hand must be the yardstick for the benefit of the results of an eco-audit in any modelling exercise. Eco-audits and/or lifecycle analyses must always be oriented on specific products and target groups in order to do justice to the specific requirements for purchased materials, capital goods and consumables. This is a precondition for an understandable, verifiable methodology which takes account of product- and sector-specific parameters. These parameters must be relevant, measurable and verifiable. "Comparability ahead of correctness" cannot and must not be the determinant factor. It must be possible to carry out lifecycle analyses within a reasonable timetable and for them to deliver relevant results in the framework of an adequate interpretation.

c. Experiences with PEFCR run counter to the harmonisation objective of the PEF methodology

The accuracy of the PEFCR pilot projects is restricted due to generic data. Benchmarking calls for an enormous number of reference products. The more complex a product is, the more complex is data procurement. By way of example, electrical and electronic products in particular consist of a large number of parts, components and materials, which is reflected in a multi-layered, international supply chain. The general applicability of the PEF and PEFCR approach conflicts with this. This means that the objectives of a harmonisation and simplification of product-related environmental communication are thwarted and that, instead, problems proliferate.

4. Proposals for improving the PEF methodology

The European Commission should revisit the PEF guide and iron out the identified shortcomings without delay. The objective must be enable a flexible and workable procedure for PEFCR pilot projects which leads to robust, reliable and verifiable results. Unfortunately, the European Commission has only reacted inadequately to the points of criticism set out in section 3, as the following examples show:

a. Better consideration of the recycling situation: The PEF methodology foresees a certain allocation method for taking recycling processes into consideration. Since allocations are subject to conventions and can alter the result depending on the method applied, the PEF methodology should not merely lay down a rigid method but ensure that relevant recycling situations can be described. In order to verify relevance of an allocation method for the result, sensitivity analyses should be carried out alongside the basic allocation. This is in line with ISO standard 14040/44. A range of allocation approaches will provide incentives to upgrade recycling which can perfectly well be determined individually for different materials or products.

b. Toxicity impact categories used hitherto is deficient: The application of toxicity impact criteria in the framework of Life Cycle Impact Assessments (LCIA) currently runs into considerable methodological and scientific weaknesses. For the impact criteria human toxicity and ecotoxicity, the USEtox model is used in the framework of PEF. Due to limited and obsolete data availability as well as inadequate consideration of the specifics of individual substances, this model is characterised by great uncertainty which is manifested in a high level of variability in the results. Furthermore, the exposure scenarios in the model

are theoretical and depart significantly from procedures such as those laid down in the European chemicals regulation REACH. Harmonisation is necessary here in any event so that the toxic impact of substances receives appropriate consideration. With the current method, it is not possible to deduce consistent and exploitable results. The same applies for development of the associated consumer communication.

- c. Abiotic Depletion Potential (ADP):** Similarly, this proposed impact indicator is ineffective because it does not build on mechanisms rooted in environmental science. There is currently no uniform and scientifically recognised method for representing the interplay between resource depletion from the environmental angle and scarcity from the economic angle. The results of the method are very variable because the ADP results for important raw materials reverse depending on the reference magnitude chosen (known as “Reserves” or “Ultimate Reserves”). Accordingly, a relevance for the environment cannot be deduced from this indicator.
- d. Standardisation:** Value creation chains are global in part; as yet there are no reliable and generally recognised factors in this regard.
- e. Weighting:** Weighting regimes must be generally acceptable and follow a recognised deduction method. Weighting is linked to comparative documentation requirements which are described in ISO 14040 and 14044.
- f. Final aggregation:** The method is arbitrary and does not stand up to scrutiny with the available factors and their deduction. A clearly defined procedure must be specified and documented in this area. Nevertheless, a clear weighting of the individual indicators across all sectors, products, substances and compartments is not possible. This is particularly the case where minimal requirements are placed on the relevance of the results.

5. Fundamental comments on PEFCR pilot projects currently under way

a. High financial and time effort for companies: A technical secretariat has been put in place for each pilot project in which various stakeholders participate. As a rule, stakeholders pay a participation fee to cover the costs of the technical secretariat. Added to this financial effort is the technical effort which is highly complex and time-intensive, above all if a sector is involved in several pilot projects.

Following preparation of the PEFCRs, it is foreseen that three PEF calculations will be carried out within a pilot project. According to first rough estimates, a PEF calculation costs around € 100,000 so that costs totalling more than € 7 million would be incurred within the pilot projects. Small and medium-sized enterprises are hardly in a position to shoulder such an effort.

The probable costs for preparing and communicating PEFs in the individual categories must therefore be evaluated, a factor which is likely to be decisive for affected small and medium-sized enterprises.

b. Inconsistencies in implementation of the PEF and PEFCR guidelines: Current work in the PEF pilots shows that the PEF guidelines and PEFCR guidelines set out inappropriate and overly generalised requirements in many cases. A more concrete design of the objectives and scope is therefore urgently necessary, certainly before the next phase of the pilot projects starts. In this regard, it is important to establish clarity as to whom the findings prepared and the immense volume of data which need constant updating are intended to serve. Moreover, it should be established how multiple audits of products should be avoided.

c. Vague and unwieldy definitions of products and their functionalities: Discussions within the various pilot projects on the relevant investigation framework have shown that it is very difficult to define the corresponding products to be investigated. Many pilot projects also show that the functionality is difficult to define and as a rule the overall complexity of a product cannot be captured. Thus, many products are multifunctional. This can be seen, for instance, by comparing a car trip with a train journey depending on which elements are to be considered (e.g. flexible travel times, no additional travel to and from the station or the possibility to read and work while travelling).

d. One-dimensional product comparison using only environmental indicators causes confusion: The question of a product's functionality and/or its integration in a system is the primary interest of the customer and user. With a product assessment using only an eco-audit approach or lifecycle analyses, there is a danger of erroneous interpretations insofar as product-relevant environmental impacts are inadequately taken into consideration or can only be determined with insufficient reliability. Eco-audits and lifecycle analyses must always be oriented on specific product and target groups in order to do justice to the specific requirements of complex products in particular. Environmental criteria are not the only parameters that need to be taken into consideration in a product assessment: the health aspect of foodstuffs, the consequences of farming methods for animal protection are also important factors which the PEF does not take into account. This complex multi-dimensionality of product assessments must not be disregarded or unacceptably

simplified. It is part of any product assessment from the outset. In addition, economic and social aspects also form part of a holistic product assessment.