Guidance for the implementation of the EU Organisation Environmental Footprint (OEF) during the Environmental Footprint (EF) Pilot Phase

Version 4.0 – February 2016

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Preface

This guidance document (henceforward, the Guidance) shall only be used in the context of the Environmental Footprint (EF) pilot phase (hence after: EF pilot phase) that the European Commission is carrying out in the period 2013-16. This document provides guidance on different steps of the Organisation Environmental Footprint (OEF) pilot phase, like the development of Organisation Environmental Footprint Sector Rules (OEFSRs), requirements related to the communication of the information gathered through the OEF pilot phase to 3rd parties (e.g. through environmental reporting), requirements on the review of the sector rules, and verification of the information provided.

The content of this Guidance will be periodically revised during the EF pilot phase to reflect the experiences and lessons learnt.

All participants of the OEF pilot phase shall strictly follow the latest version of this document available on the EF wiki. Any derogation from this general rule is only possible with the agreement of the European Commission.

Each form of communication referring to the results of the OEF pilot phase shall always cite the version of the OEF Guide and the Guidance it conforms with.

Please cite this document as European Commission, 2016, Environmental Footprint Pilot Guidance document, - Guidance for the implementation of the EU Organisation Environmental Footprint (OEF) during the Environmental Footprint (EF) pilot phase, v. 4.0, February 2016.

For any technical question related to the content of this guidance, please refer to the functional mailbox env-environmental-footprint@ec.europa.eu

Disclaimer

The European Commission accepts no responsibility of whatsoever nature to third parties to whom this Guidance, or any part thereof, is made known. Any such party relies on the Guidance at their own risk.
List of acronyms

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<thead>
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<th>Expansion</th>
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<tbody>
<tr>
<td>B2B</td>
<td>Business to Business</td>
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<tr>
<td>B2C</td>
<td>Business to Consumers</td>
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<tr>
<td>BOM</td>
<td>Bill of materials</td>
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<tr>
<td>BREF</td>
<td>Best Available Techniques Reference Document</td>
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<tr>
<td>CF</td>
<td>Characterisation Factor</td>
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<tr>
<td>CPA</td>
<td>Statistical Classification of Products by Activity</td>
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<tr>
<td>DQR</td>
<td>Data Quality Rating</td>
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<tr>
<td>EF</td>
<td>Environmental Footprint</td>
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<tr>
<td>ELCD</td>
<td>European Life Cycle Database</td>
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<td>EMAS</td>
<td>Environmental Management and Audit Scheme</td>
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<tr>
<td>EoL</td>
<td>End of Life</td>
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<tr>
<td>EPD</td>
<td>Environmental Product Declaration</td>
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<tr>
<td>FRT</td>
<td>Sustainable Consumption and Production Food Round Table</td>
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<tr>
<td>GHG</td>
<td>Greenhouse Gas</td>
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<tr>
<td>GRI</td>
<td>Global Reporting Initiative</td>
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<tr>
<td>ILCD</td>
<td>International Reference Life Cycle Data System</td>
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<tr>
<td>ISO</td>
<td>International Organisation for Standardisation</td>
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<tr>
<td>LCA</td>
<td>Life Cycle Assessment</td>
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<tr>
<td>LCI</td>
<td>Life Cycle Inventory</td>
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<tr>
<td>LCIA</td>
<td>Life Cycle Impact Assessment</td>
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<tr>
<td>MS</td>
<td>Member State</td>
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<tr>
<td>NACE</td>
<td>Nomenclature Générale des Activités Economiques dans les Communautés Européennes</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
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<tr>
<td>OEF</td>
<td>Organisation Environmental Footprint</td>
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<tr>
<td>OEFSR</td>
<td>Organisation Environmental Footprint Sector Rule</td>
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<tr>
<td>PAS</td>
<td>Publicly Available Specification</td>
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<tr>
<td>PCF</td>
<td>Product Carbon Footprint</td>
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<tr>
<td>PCR</td>
<td>Product Category Rule</td>
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<td>PEF</td>
<td>Product Environmental Footprint</td>
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<tr>
<td>PEFCR</td>
<td>Product Environmental Footprint Category Rule</td>
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<tr>
<td>RO</td>
<td>Representative Organisation</td>
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<tr>
<td>SC</td>
<td>Steering Committee</td>
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<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
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<td>TAB</td>
<td>Technical Advisory Board</td>
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<tr>
<td>WRI</td>
<td>World Resource Institute</td>
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</table>
1. Context for the creation of this Guidance document

1.1. Definition and purpose of OEFSRs

Organisation Environmental Footprint Sector Rules (OEFSRs) provide sector-specific guidance for calculating and reporting an organisation's life cycle environmental impacts.

The OEF Profile of an organisation can only be reported or otherwise communicated if it contains a minimum list of primary, organisation-specific information. In particular, each OEFSR shall specify the minimum list of organisation-specific processes that shall be included in the boundaries and for which and company specific primary data shall be collected.

Sector-specific rules similar to OEFSRs exist in standards for calculating GHG emissions, such as the GHG Protocol. OEFSRs were named differently in order to prevent confusion with other similar rules and uniquely identify rules under the OEF Guide.

Existing life cycle-based standards do not provide sufficient specificity to ensure that the same assumptions, measurements and calculations are made to potentially enable comparable environmental claims across similar organisations operating in the same sector. In order to address this limitation, the use of OEFSRs will play an important role in increasing the reproducibility, relevance, and consistency of OEF studies (and therefore comparability between OEF calculations in time and, possibly within the same sector).

The OEFSR should be developed and written in a way that a layman can understand it and use it to conduct an OEF study. Acronyms and technical jargon should be avoided as much as possible. Technical concepts (i.e. allocation rules, substitution, etc.) should be clearly explained with practical examples to avoid as much as possible different possible interpretations by final users. In principle, non-LCA practitioners should be able to understand and follow the OEFSR.

OEFSRs shall be developed according to the OEF Guide. Deviations from the OEF Guide are accepted in the context of the pilot phase, provided that these deviations are allowed in this Guidance.

The OEFSRs aims to focus OEF studies on those aspects and parameters that are most relevant in determining the environmental performance of an organisation in the given sector, thus also reducing time, efforts and costs necessary to carry it out.

The OEF pilot phase will aim to explore whether it is possible to compare two similar organisations operating in the same sector, or, in case of organisations covering several sectors, to compare the performance of business units. Therefore, during the development of each OEFSR, participants shall strive to ensure comparability between

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1 A sector is defined with reference to the characteristic sectorial Product Portfolio using NACE codes (i.e. in line with the Nomenclature générale des Activités Économiques dans les Communautés Européennes NACE Rev. 2).

2 Recommendation 2013/179/EU on The use of common methods to measure and communicate the life cycle environmental performance of products and organisations
similar organisations (or business units) operating in the same sector. In case it is concluded that it is not possible to compare organisations (or business units) the OEFSR shall clearly state that the OEFSR cannot be used as a basis for comparative assertions.

OEFSRs shall be developed according to the OEF Guide\(^3\). OEFSRs shall aim to focus the OEF studies on those aspects and parameters that are most relevant in determining the environmental performance of the organisation. An OEFSR shall further specify requirements made in the general OEF Guide and shall add new requirements where the OEF Guide provides several choices or where the OEF Guide was not covering sufficiently the particularity of the life cycle of a specific sector.

The compliance to and OEFSR developed according to the requirements included in this Guidance is a mandatory condition for all studies carried out in the framework of the EU PEF/OEF Pilot phase launched by the Commission in 2013 as announced in the Communication “Building the Single Market for Green Products”\(^4\). In order to guarantee this condition and support the work of the Technical Secretariats of the various pilots, the Commission, supported by the Environmental Footprint Helpdesk, will systematically perform technical checks on the documents produced at various stages of the process (see also 2.6 – conditions to stop a pilot) and will provide feedback to the piloters to give them the opportunity to re-adjust their work.

Furthermore, the existence of (and compliance to) an OEFSR enabling comparison, developed according to the requirements included in this Guidance is a mandatory condition whenever the results of an OEF study are intended to be used for comparisons or comparative assertions to be disclosed to the public\(^5\).

For the pilots related to food, feed, and drinks (2\(^\text{nd}\) call for pilots), the ENVIFOOD Protocol\(^6\) shall be used as complementary guidance to the requirements in the PEF/OEF guides and the present guidance. In case of conflicting requirements between the PEF/OEF guides and the ENVIFOOD Protocol, the first prevails over the second. However, where relevant and appropriate, each Technical Secretariat is invited to consider the possibility to also test the requirements in the ENVIFOOD Protocol in addition to the PEF/OEF guides and use the results as part of a sensitivity analysis.

**Terminology: shall, should and may**

This Guidance uses precise terminology to indicate the requirements, the recommendations and options that can be chosen when developing an OEFSR.

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3 Recommendation 2013/179/EU on The use of common methods to measure and communicate the life cycle environmental performance of products and organisations
4 COM (2013) 196
5 As ISO does not define the concept of comparison (but only comparative assertion), it is important to capture the difference among the two. In the case of organisations, a comparison would compare organisation A to organisation B along the results of the investigated e.g. 10 impact categories, and compare impact category to impact category without stating whether organisation A and B are equivalent or one of them is overall better or worse. A comparative assertion would come up with the results that organisation A is performing better than, worse than or equivalent to organisation B.
The term “shall” is used to indicate what is required in order for an OEFSR to be in conformance with this OEFSR Guidance.

The term “should” is used to indicate a recommendation rather than a requirement. Any deviation from a “should” requirement has to be justified when developing the OEFSR and made transparent.

The term “may” is used to indicate an option that is permissible. Whenever options are available, the OEFSR shall include adequate argumentation to justify the chosen option.

1.2. Terms and definitions
For all terms used in this Guidance (including its annexes) and not defined below, please refer to the most updated version of the Organisation Environmental Footprint (OEF) Guide, ISO 14025:2006, and ISO 14040-44:2006, and the ENVIFOOD Protocol. See Annex E for data needs related definitions.

**Benchmark** – A standard or point of reference against which any comparison can be made. In the context of the Environmental Footprint pilot phase, the term ‘benchmark’ refers to the average environmental performance of the representative organisation (see definition below) operating in the EU market. A benchmark may eventually be used, if appropriate, in the context of communicating environmental performance of an organisation belonging to the same category.

**Best Available Techniques Reference Document** – documents that have been drawn as part of the exchange of information carried out in the framework of Article 13(1) of the Industrial Emissions Directive (IED)\(^7\). They give information on a specific industrial/agricultural sector in the EU, on the techniques and processes used in this sector, current emission and consumption levels, techniques to consider in the determination of the best available techniques (BAT) and emerging techniques.

**Business to Business (B2B)** – Describes transactions between businesses, such as between a manufacturer and a wholesaler, or between a wholesaler and a retailer.

**Business to Consumers (B2C)** – Describes transactions between business and consumers, such as between retailers and consumers. According to ISO 14025:2006, a consumer is defined as “an individual member of the general public purchasing or using goods, property or services for private purposes”.

**Comparative assertion** – environmental claim regarding the superiority or equivalence of one organisation versus a competing organisation that operates in the same sector, based on the results of an OEF study and supporting OEFSRs.

**Comparison** – A comparison, not including a comparative assertion, (graphic or otherwise) of two or more organisations based on the results of an OEF study, and supporting OEFSRs.

**EMAS Sectoral Reference Documents (EMAS SRDs)** – documents developed according to Art. 46 of the EMAS Regulation\(^8\), which contain best environmental

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\(^7\) Directive 2010/75/EU on industrial emissions

\(^8\) Regulation (EC) No 1221/2009
management practice, environmental performance indicators for specific sectors and, where appropriate, benchmarks of excellence and rating systems identifying environmental performance levels.

**Environmental aspect** – element of an organisation’s activities, products or services that can interact with the environment (ISO 14025:2006).

**Green claim** – Any form of communication towards 3rd parties regarding an organisation’s environmental performance, such as reports, responses to questionnaires, declarations and press releases. Herein claims refer exclusively to those based on a life cycle assessment (LCA-based claims), even if limited to a single environmental indicator (e.g. GHG reports based on Scope 1, 2 and 3).

**OEF Profile** – the quantified results of an OEF study. It includes the quantification of the impacts for the various impact categories and the additional environmental information considered necessary to be reported.

**OEF screening** – a preliminary study carried out on the representative organisation, and intended to identify the most relevant life cycle stages, processes, impact categories and data quality needs to derive the preliminary indication about the definition of the benchmark for the sector in scope, and any other major requirement to be part of the final OEFSR.

**OEFSR Supporting study** – the OEF supporting study done on the basis of a draft OEFSR. It is used to confirm the decisions taken in the draft OEFSR before the final OEFSR is released.

**Organisation** - a company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private. For the purpose of calculating the OEF, the function of the organisation is defined as the provision of products (i.e. goods and services) over a specified reporting interval, thus it is defined with reference to its Product Portfolio.

**Organisational claims** – Any form of communication regarding an organisation's environmental performance, such as reports, responses to questionnaires, declarations and press releases. Herein claims refer exclusively to those based on a life cycle assessment (LCA-based claims).

**Organisation Environmental Footprint Sector Rules (OEFSRs)** – Sector-specific, life-cycle-based rules that complement general methodological guidance for OEF studies by providing further specification at the level of a specific sector. OEFSRs help to shift the focus of the OEF study towards those aspects and parameters that matter the most, and hence contribute to increased relevance, reproducibility and consistency of the results whilst reducing costs in comparison to a study based on the comprehensive requirements of the OEF Guide. OEFSRs are defined primarily with reference to the activities characteristic of the sector, as represented in a typical Product Portfolio.

**Product Category Rules (PCR)** – Set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories (ISO 14025:2006).
**Product Portfolio** – The Product Portfolio refers to the amount and nature of goods and services provided by the Organisation over the reporting interval, which should be one year.

**Representative organisation (model)** - The “representative organisation” is a real or fictive organisation that is typical for the given sector and Product Portfolio. Especially when technologies and the composition of Production Portfolios within a sector are varied, the “representative organisation” can be a virtual (non-existing) organisation, built, for example, with the average EU sales-weighted characteristics of all technologies used, using the Product Portfolio as a reference. If appropriate, an OEFSR might include more than one representative organisation (business unit).

**Sector** – characteristic sectorial Product Portfolio, defined using NACE codes (i.e. in line with the Nomenclature générale des Activités Economiques dans les Communautés Européennes NACE Rev. 2).

### 1.3. Rationale

The Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods are Life Cycle Assessment (LCA) based methods to quantify the relevant environmental impacts of products (goods and services) or an organisation, respectively. They build on existing approaches and international standards, even if using LCA for organisation-level assessment represents a relatively novel approach.

One important feature of the OEF method is that it sets the basis for comparability of the results. For OEF, the possibility of comparisons depends also from the nature of the sector, and in any case is only possible if the results are based on the same Organisation Environmental Footprint Sector Rules (OEFSRs) (see explanation below).

At organisational level, the importance of the environmental impacts occurring in the supply chain is increasingly recognised. Standards and methods were created, such as the GHG Protocol Corporate Standard and its sectoral guidance or Global Reporting Initiative indicators. At EU level, the EMAS Sectoral Reference Documents include guidance regarding indirect impacts. However, there is no experience with making comparative assertions at organisation level.

These initiatives indicate the growing demand for such information from both public and private actors, but also represent a problem as too often methods and specific guidance are “similar but different” limiting their applicability to make informed comparisons between similar organisations belonging to the same sector. Furthermore, flexibility inherent to methods and standards can prevent a comparison of the performance of a single organisation through time, if methodological choices are not consistently made.

Consistent and comparable information is important for any application that requires establishing the performance of an organisation respectively to peers in a sector (e.g. sustainability indices, potential use in green public procurement, performance league

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This Guidance represents a contribution to meeting these challenges. It has been written trying to be as much as possible in line with similar major standards and initiatives. Consistency with the Product Environmental Footprint (PEF) and, where appropriate, Product Environmental Footprint Category Rules (PEFCRs) ensure complementarity between the tools and streamlines processes for organisations wishing to apply both PEF and OEF.

1.3.1 The context of use of this Guidance document

This Guidance is only to be used in the framework of the EF pilot phase on OEF that the Commission launched in 2013. The objectives of the OEF pilot phase are the following:

- Set up and test the process for the development of Organisation Environmental Footprint Sector Rules (OEFSRs) for a number of sectors;
- Identify and exploit simplification opportunities for carrying out an OEF study through the OEFSRs;
- Set up a cost-effective verification system, in particular with reference to embedded impacts and traceability of information;
- Test the usefulness of information for the organisations' key stakeholders (e.g. business partners, investors, public administrations, NGOs) with the view of making sure that information is "translatable" to their needs;
- Support the advancement and alignment of existing LCA-based standards;
- Facilitate the involvement of all stakeholders interested in the development process.

1.3.2. Relationship to other Standards or Guidance documents

This Guidance includes several elements taken from other relevant documents such as:

- Organisation Environmental Footprint (OEF) Guide, Annex to Commission Recommendation 2013/179/EU on the use of common methods to measure and communicate the life cycle environmental performance of products and organisations (April 2013)\(^\text{10}\)
- Guidance for Product Category Rule Development\(^\text{11}\)
- ISO 14025:2006 - Environmental labels and declarations – Type III environmental declarations – Principles and procedures (ISO)
- BP X30-323-0:2011 - Principes généraux pour l'affichage environnemental des produits de grande consommation (AFNOR, France)

\(^\text{10}\) [http://ec.europa.eu/environment/eussd/smgp/index.htm](http://ec.europa.eu/environment/eussd/smgp/index.htm)

\(^\text{11}\) Ingwersen, W., Subramanian, V., editors. Product of the Product Category Rule Guidance Development Initiative. [http://www.pcrguidance.org](http://www.pcrguidance.org)
1.3.3. Intended Audience

The intended audience of this Guidance includes all stakeholders participating in the developments of OEFSRs within the framework of the OEF pilot phase launched by the Commission in 2013.

1.4. Revision of the Guidance

This document will be periodically revised during the EF pilot phase. Once the EF pilot phase is concluded and based on the lessons learnt, a final version of this Guidance will be drafted and published.

2. Preparation for OEFSR development

An OEFSR may not always needed for carrying out an OEF study. Depending on the kind of application the use of an OEFSR could be optional, recommended or mandatory. Table 1 provides, only as an illustrative example, some cases of applications where an OEFSR could or could not be requested (the table is not to be considered exhaustive). The cases described are only indicative and applicable exclusively in the context of the EF pilot phase.

- PAS 2050 - Specification for the assessment of the life cycle greenhouse gas emissions of goods and services (BSI, 2011)
- ISO 14064-1:2006 – Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
- ISO 14020:2000 Environmental labels and declarations – General principles
- ISO 14021:1999 Environmental labels and declarations — Self-declared environmental claims (Type II environmental labelling)
- ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework
- ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines
- ISO 14050:2006 Environmental management — vocabulary
- ISO 17024:2003 Conformity assessment – General requirements for bodies operating certification of persons
Table 1: Scenarios that does and does not necessitate the use of OEFSRs

<table>
<thead>
<tr>
<th>Application</th>
<th>Use of an OEFSR</th>
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<tbody>
<tr>
<td>Any OEF study not used for external communication (e.g. for in-house improvements) and declared to be in compliance with the OEF Guide.</td>
<td>![ ]</td>
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<tr>
<td>Reporting without comparisons or comparative assertions</td>
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<tr>
<td>Reporting with comparisons or comparative assertions</td>
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2.1. Organisational structure of the EF pilot phase

The participation to the EF pilot phase study is a pro bono activity carried out by all stakeholders interested in a specific sector. In order to organise and coordinate the work in the best way possible the following structure is considered to be necessary:

- A Steering Committee (SC)
- A Technical Advisory Board (TAB)
- A Technical Secretariat (TS)
- An EF technical helpdesk

2.1.1. EF Pilot Steering Committee

For the whole duration of the EF pilot phase a Steering Committee is set up.

The composition of the Steering Committee and its rules for procedure are available at: [https://webgate.ec.europa.eu/fpfis/wikis/display/EUENVFP/Steering+Committee+work space](https://webgate.ec.europa.eu/fpfis/wikis/display/EUENVFP/Steering+Committee+work space).

The Commission chairs the meetings and is responsible for all activities related to its organisation and management.

The role of the Steering Committee is:

a) Approve the scope and the definition of the representative product/ organisation for each PEFCR/ OEFSR developed within the EF pilot phase. When relevant, the opinion expressed by the Technical Advisory Board on these documents will be taken into consideration by the Steering Committee;
b) Monitor the progress in each PEFCR/ OEFSR pilot;
c) Exchange information about challenges and lessons learnt in each pilot;
d) Express an opinion on the second draft of an OEFSR before starting the supporting studies and the communication phase;
e) Decide on the review requirements for the EF pilot phase;
f) Approve the final OEFSR;

g) Contribute, review and comment on the development of the "footprint weighting method" as developed by JRC-IES;

h) Solve any conflicts that might arise during the implementation of the environmental footprint pilot exercise.

When the decision of the Steering Committee might have an impact on the general requirements included in the PEF or OEF Guides, these changes shall be preventively agreed with the Commission.

2.1.2. EF Technical Advisory Board (TAB)

Each member of the Steering Committee may appoint up to 1 expert to be member of the Technical Advisory Board to the Steering Committee. The Commission chairs the meetings and is responsible for all activities related to its organisation and management.

The role of the Technical Advisory Board member is (non-exhaustive list) to:

a) Provide support to the Steering Committee members that have appointed them on the scope of the product category or sector for each OEFSR developed within the EF pilot phase;

b) Check and advise the Steering Committee members on consistency of approaches among different OEF pilot sectoral rules, including but not limited to how to identify the representative organisation and how to develop benchmarks;

c) Provide technical advice to the Steering Committee members about draft OEFSRs (based on the results of the screening)

d) Provide technical advice to the Steering Committee members in case of issues related to the implementation of the OEF requirements;

e) Provide support to the Steering Committee members on decisions related to review and verification;

f) Express an opinion to the Steering Committee members on the final OEFSR before the approval from the Steering Committee.

Furthermore, the TAB expresses its opinion and input to the Commission on technical issues that are of cross-cutting relevance to several EF pilots.

2.1.3. The Technical Secretariat

For each pilot there shall be a Technical Secretariat. The Technical Secretariat is responsible for the following activities:

a) Overall drafting of the OEFSR proposal;

b) Preparation, maintenance and communication of all instructions related to the OEFSR development process;
c) Facilitation of harmonisation with existing sector-specific guidance or, where appropriate, PCRs;

d) Organisation of the physical consultation meetings, including preparation of the agenda, sending the invitation, drafting supporting documents, taking minutes during the meetings;

e) Organisation of the virtual consultation periods according to the rules and timing specified in 2.5.1. This task includes the drafting of the OEFSR chapters, collection and analysis of the comments received, and the drafting of the document analysing how the comments have been addressed;

f) Supporting the management of the EF virtual consultation Forum. This activity includes tasks such as the drafting of publicly available explanatory materials related to their OEF pilot phase sectoral rules activities and the publication of the names of the organizations (not individual names) involved as stakeholders in the OEFSR development process;

g) Ensuring that the OEF screening is performed, develop the representative model developed and all the OEF calculations necessary run as requested in this Guidance;

h) Periodically updating in the EF virtual consultation Forum a list of all the documents consulted during the OEFSR development process;

i) Ensuring the selection and appointment of competent independent OEFSR review panel members.

During the EF pilot phase the role of Technical Secretariat may be played by a single company, an industrial association, an NGO, a Member State, a national or an international Institution (e.g. the Commission), universities or research institutes. The preferable option would be that the Technical Secretariat is constituted by a mix of the previously mentioned organisations.

The Technical Secretariat shall appoint a chair and will identify a Sectorial Coordinator. The chair has the role of coordinating the different tasks of the Technical Secretariat, chairing the physical consultation meetings, whilst the Sectorial Coordinator represents the Technical Secretariat in the Steering Committee.

### 2.1.4. EF Technical helpdesk

For the whole duration of the EF pilot phase the Commission has made an external technical helpdesk available. The role of this helpdesk is to

- support the Commission in the revision of any document released by the Technical Secretariats (e.g. the representative organisation model, draft OEFSR, etc),
- support the activities of each category rule/sectoral rule pilot providing technical assistance related to the application of the PEF/OEF Guide,
- provide explanations and support on specific steps of the PEFCR/OEFSR development process,
• provide specific training sessions during the EF pilot phase,
• manage the virtual consultation Forum.

2.1.5. EF virtual consultation Forum

A dedicated website (EF Wiki) has been created and will be maintained during the whole duration of the Environmental Footprint (EF) pilot phase. It is available at: https://webgate.ec.europa.eu/ftpis/wikis/display/EUENVFP/.

The EF virtual consultation Forum is the location where all documents related to the EF pilot category rules/sectoral rules are stored, where each consultation step is carried out, where the periodic communication on the pilots’ advancements are taking place. A separate working space is available for each OEFSR and PEFCR pilot.

The virtual consultation Forum is managed by the Commission with the active involvement of the EF Technical Helpdesk and each Technical Secretariat.

2.2. Stakeholders involved in OEFSR development

The process of developing OEFSRs shall be open and transparent and shall include an open consultative format with relevant stakeholders.

The stakeholders should be involved following a supply chain approach. The relevant stakeholders for OEFSR may include, but are not limited to, material suppliers, manufacturers, trade associations, purchasers, users, consumers, government representatives, non-governmental organizations (NGOs), public agencies and, when relevant, independent parties and certification bodies.

2.3. Scope of the OEFSR

The primary objective of an OEFSRs is to fix a consistent set of rules to calculate and communicate the relevant environmental information on organisations in a given sector. An equally important objective is to enable comparisons and comparative assertions between organisations operating in the same sector (with a similar Product Portfolio) in all cases when this is considered feasible, relevant and appropriate.

The granularity of the scope, the representative organisation(s) and the approach to identify the benchmarks are key decisions that shall be identified and justified in an extensive and transparent way in the OEFSR document (see chapter 3 for more info on the content of an OEFSR).

Meaningful comparisons can only be made if the organisations have similar Product Portfolios, as defined in the reporting unit (unit of analysis).

Pilot participants are encouraged to define a wide scope that can capture the typical Product Portfolio in the sector (e.g. if typically bleaching textiles is part of the activities of wearing apparel manufacturers, both NACE codes 13 and 14 would be included). A too narrow sector definition would result in a very large number of OEFSRs, which, in an extreme case could lead to meaningless OEFSRs.
The definition of the reporting unit (unit of analysis) should take a functional approach wherever the Product Portfolio allows for this. This approach also enables to link the sector with the NACE codes. However, first the scope of the sector shall be defined, and only afterwards corresponding NACE codes identified.

An important issue when defining the scope of sectors for creating OEFSRs is how to manage the consistency of OEFSRs of organisations that according to their NACE codes belong to a different sector, however have an overlap in parts of their Product Portfolio. For example, it shall be ensured that a manufacturer of leather and related products (NACE C15) and a manufacturer of wearing apparel (NACE C14, includes leather clothes) are using the same allocation rules as far as leather products are concerned. Such consistency shall be ensured by the Steering Committee with the support of the Technical Advisory Board.

2.4. Steps to carry out before the creation of a new OEFSR

Before starting the development of a new OEFSR, the Technical Secretariat shall carry out a thorough search to identify existing sectoral guidance and rules (henceforward: sector guidance), or, if appropriate, PCRs that cover the Product Portfolio.\(^\text{12}\)

If no existing sector guidance is found suitable to be used as basis for the OEFSR, the Technical Secretariat shall move forward to develop its own OEFSR “from scratch”. However, when the Technical Secretariat finds that sector guidance exists for the same or overlapping sector in one or more other programme(s), the Technical Secretariat shall perform an analysis identifying the consistency of the existing sector guidance against the criteria set in this Guidance and in the OEF Guide. Existing sector guidance need to be evaluated only up to the point where a decision can be made whether they should be used as a basis for the development of an OEFSR or not. Only documents that are a suitable basis for an OEFSR need to be evaluated further with the necessary detail.

If, based on the results of this analysis, the existing sector guidance is completely in line with OEF requirements, the existing document shall be used as OEFSR for the same sector, complementing it with any additional elements as appropriate (e.g. additional environmental information). If there are a number of deviations, then the Technical Secretariat shall document the major differences in a report to be uploaded in the EF virtual consultation Forum. The OEFSR development process will then adapt the existing sector guidance and make it fully consistent with the OEF requirements and the requirements of this Guidance document.\(^\text{13}\)

In particular, this alignment process needs to occur across the following principle elements: (1) data alignment, (2) the OEF and additional requirements for the generation of the OEFSR; and (3) OEFSR-related procedures.

(1) Data alignment. Data needs to fulfil common quantified quality requirements according to the OEF Guide. This is both valid for primary data (rules on data collection) and secondary data. Whenever possible, specific datasets (or databases fulfilling the quality requirements) shall be used. The specificities related to

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12 For example a PCR repository exists at http://pcr-library.edf.org.tw/index.asp
13 The adapted OEFSR should reference the original sector guidance and programme(s).
geographical areas, time representativeness and technologies shall also be acknowledged and dealt with in the OEFSRs.

(2) Rule alignment. All rules in the existing sector guidance documents shall be consistent with the OEF Guide, for example specification of the reporting unit (unit of analysis), scope of the study, life cycle inventory, any allocation rules, impact assessment, and rules for additional information. Coherence with OEFSRs for related sectors, if existing, is also to be considered.

(3) Procedural alignment. Requirements for creation and review of the existing sector guidance shall be equivalent, if not identical, to OEFSR requirements.

When sector guidance exists for a sector in one or more other programme(s), the other programme operator(s) shall be contacted and invited by the Technical Secretariat to join the OEFSR development process.

2.5. The process of creating an OEFSR

The development of an OEFSR shall be based on an open and transparent consultation process involving all interested stakeholders. Reasonable efforts should be made to achieve a consensus throughout the process (ISO 14020:2000).

The inclusion of a virtual consultation and involvement process aids in ensuring that the opportunity exists for any and all stakeholders to contribute actively to the OEFSR development process or to provide comments regarding the OEFSR being developed, thus creating a development process which takes into account all relevant expertise with the utmost transparency.

2.5.1. Timing of the process

All reasonable efforts shall be made to limit the duration of an OEFSR development to 24 months maximum (including the OEFSR review), after some preliminary work has been done. In Table 2 the reference timing is reported for the development of a new OEFSR. Each Technical Secretariat shall organise its own working agenda in a way to remain as much as possible in line with the timing reported in Table 2. Any major deviation from it should be discussed and agreed in the Steering Committee.
<table>
<thead>
<tr>
<th>Activity</th>
<th>TS</th>
<th>Stakeholders</th>
<th>SC</th>
<th>Reference Timing(^{15})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis of existing sector guidance and scope definition + draft definition of the representative organisation</td>
<td>X</td>
<td></td>
<td></td>
<td>Preliminary work</td>
</tr>
<tr>
<td>1(^{st}) physical consultation (scope, draft definition of representative organisation)</td>
<td>X</td>
<td></td>
<td></td>
<td>Month 3</td>
</tr>
<tr>
<td>Written feedback on 1(^{st}) consultation document</td>
<td>X</td>
<td></td>
<td></td>
<td>Month 3-4 (2 weeks before and after 1(^{st}) stakeholder consultation meeting)</td>
</tr>
<tr>
<td>Analysis and feedback of results for 1(^{st}) physical consultation</td>
<td>X</td>
<td></td>
<td></td>
<td>Month 4-5</td>
</tr>
<tr>
<td>Approval of scope and of the definition of the representative organisation</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OEF Screening (impact assessment, interpretation and conclusion, report)</td>
<td>X</td>
<td></td>
<td></td>
<td>Month 5-8</td>
</tr>
</tbody>
</table>

**Sending draft OEF screening to the EC for review**

- 1st draft OEFsR based on OEF screening: X Month 10
- Virtual consultation (results OEF screening and 1\(^{st}\) draft OEFsR, additional environmental information): X Month 11

| Written feedback on 1\(^{st}\) draft OEFsR                              | X  |              |     | Month 11-12 (2 weeks before and after 1\(^{st}\) stakeholder consultation meeting) |
| Analysis and feedback of comments from 1\(^{st}\) virtual consultation | X  |              |     | Month 12-13               |
| 2\(^{nd}\) draft of the OEFsR                                         | X  |              |     | Month 13                  |

**SC opinion on the 2\(^{nd}\) draft OEFsR (based on the results of the screening and the stakeholder consultation)**

| OEFsR supporting studies                                              | X  |              |     | Month 15-18\(^{*}\)       |
| Final consultation (final OEFsR, including information on benchmark, verification, and classes of performance where appropriate and relevant)\(^{**}\) | X  | X            |     | Month 19-20               |
| Analysis of and feedback on comments from the final consultation      | X  |              |     | Month 21                  |

**Review of the final PEFCR by external reviewers**

| Analysis of comments from the Review, and Feedback on Review comments | X  |              |     | Month 22-23               |
| Revision of the final OEFsR + summary of all feedback                | X  |              |     | Month 24                  |
| SC Approval of the final OEFsR                                       | X  |              |     | Month 25                  |
| Release of the final OEFsR                                            |    |              |     | Month 27                  |

\(^{*}\) The official start of the pilots of the first wave (non-food related) has been set as the beginning of November, 2013. The reference timing considers 3 OEFsR supporting studies. If more studies are conducted, the reference timing might be changed consequently.

\(^{**}\) This consultation may be an online consultation or a combined (online and physical) consultation. For an online consultation, documents shall be available online at least 4 weeks. In case a physical consultation takes place, documents shall be available on the wiki pages at least two weeks before the date of the consultation and the possibility to comment shall be available for at least 2 weeks after the meeting.

A final draft OEFsR missing one or more essential elements (i.e. clear calculation rules, recommendations on communication vehicles, verification rules, and, where

\(^{14}\) The timeline in this table does not include the communication phase. The timing depends on the method used for the communication tests. In case of market tests, communication activities can start as soon as the verification of the supporting studies has been completed; in case of focus groups or online tests, they can start as soon as sufficient data is available on the product/organisation (screening study finalised). In any case, the final conclusions on the communication phase shall be included in the final OEFsR.

\(^{15}\) Unless otherwise mentioned the term “month” refers to the end of the month.
appropriate and relevant, classes of performance) or including requirements in conflict with the OEF method or the latest version of this Guidance document, might not be put forward for the final approval of the Steering Committee.

2.5.2. Consultation process

The Commission published the list of all OEFSRs under development\textsuperscript{16}.

Each Technical Secretariat shall identify and invite all the relevant stakeholders to participate in the OEFSR development by a virtual consultation process, and shall ensure that the role of the different stakeholders in the process is made clear and open to enable their participation.

Each Technical Secretariat shall create and maintain a log of those stakeholders that have been communicated with and responded to. A virtual consultation procedure shall be prepared in such a manner as to support the usage of an internet-based participatory process making use of the EF virtual consultation Forum.

An open internet-based consultation via the EF virtual consultation Forum serves the role of broadening the participation of stakeholders from different parts of the world. The use of the EF virtual consultation Forum also has the advantage that it facilitates participation from interested parties having difficulties to attend meetings, e.g. NGOs, SMEs, stakeholders from non-EU or developing countries and environmental groups.

Interested parties shall be given adequate time for review and access to the details and sources of information used. The consultation process shall also ensure that interested parties who provide comments, will receive consideration of, and response to, their comments. In particular the Technical Secretariat should, at the end of each consultation period and in any case before opening the final consultation step, produce and make public in the EF virtual consultation Forum, a document describing the major comments received and how they have been addressed.

Virtual consultations and the period for commenting on documents shall last at least 4 calendar weeks.

2.5.3. Representativeness of an OEFSR

An OEFSR is considered to be representative of a sector when all the following conditions are met:

1) The Technical Secretariat in charge of a specific sector has invited to contribute to the OEFSR development process all the major competitors, or their representatives (i.e. via industry associations) covering for at least 75\% of the EU market (in terms of yearly turnover or production). All companies contributing to more than 10\% to the EU market (in terms of yearly turnover or production) have been invited.

2) The industry stakeholders (producers/importers, either as single companies and/or as business associations) participating to the whole process cover at least 51\% of

\textsuperscript{16} This information will be available at: http://ec.europa.eu/environment/eussd/smgp/oef_pilots.htm
the EU market (in terms of yearly turnover or production). The participation of stakeholders will be judged on the basis of their inputs to the process and/or participation to meetings. The 51% target has to be achieved by the end of the pilot phase. This means that it is not a requirement for the Technical Secretariats themselves to fulfil.

3) The Technical secretariat has invited and involved in the OEFSR development process a wide range of stakeholders, with particular reference to SMEs, consumers’ and environmental associations or their representatives.

In cases where all these conditions are not met by the time a final draft OEFSR is ready, the document will not be put forward to the final approval of the Steering Committee and it will remain available as final draft.

2.6. Conditions for closing a pilot

A pilot can be closed due to one of the following circumstances:

a) It becomes evident during the process that the representativeness conditions (see 2.5.3) will not be achievable. In this case the decision to stop the pilot is taken by the Commission without further consultation with the Steering Committee.

b) In case relevant deviations from the methodological mandatory requirements foreseen in the OEF Guide or the most updated version of this Guidance document are identified by the Commission and not solved through a bilateral dialogue with the relevant pilots. In this case the Commission can propose to the Steering Committee to stop the work of the pilot till the requirements are met.

Under no circumstances a delay can justify a postponement of the overall pilot deadline (31st of December 2016).

3. Required elements of an OEFSR

3.1. Structure of the OEFSR

The OEFSR should follow the structure suggested in Annex B to this guidance. Deviations from the structure are possible, provided that the requested information is still available. Deviations shall be justified.

3.2. Procedure for the development of an OEFSR

There are a number of steps that shall be followed when preparing an OEFSR. Whilst the way to perform each step is under the technical responsibility of each Technical Secretariat, all steps shall be part at least of one consultation step with the relevant stakeholders.
3.3. Sector scope and classification

The OEFSR shall include a sector definition and a description of the Product Portfolio (PP). Pilot participants are encouraged to define a wide scope that can capture the typical PP in the sector (e.g., if typically bleaching textiles is part of the activities of wearing apparel manufacturers, both NACE codes 13 and 14 would be included). The same reporting unit (unit of analysis) shall apply to the sector.

Once the scope has been finalised, the corresponding NACE codes shall be clearly listed. PP elements that are not covered by the OEFSR shall be clearly listed (as a clarification when sectors are similar).

In case of a clearly defined, homogeneous portfolio, a single representative organisation would be typically used.

In case of a wide portfolio with different products and services covered, the definition of sub-portfolios is appropriate. In this case, several representative organisations may be defined. The OEFSR shall clearly specify what is the approach followed and what is the justification for it.
In case separate sub-portfolios are defined with their corresponding representative organisations, at least one OEFSR supporting study shall be performed for each of the sub-portfolios.

### 3.3.1. Stepwise development of the OEFSRs

The advantage of developing OEFSRs including a stepwise approach is to split the discussion on the detailed approach for eventual sub-categories from the discussion on general methodological rules (that can be done at a high level, thus taking a larger scope as a basis).

Practically speaking, for the development of an OEFSR, five main tasks shall be carried out:

<table>
<thead>
<tr>
<th>Task number</th>
<th>Task description</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Complete general and informative chapters that have a limited influence on the environmental footprint (EF) calculation itself. With reference to the OEFSR template provided in Annex B to this Guidance, these chapters shall include: B.1 General information about the OEFSR B.2 Methodological inputs and compliance (except the product category definition) B.3 OEFSR review and background information</td>
<td>This can be done with a large scope without considering the reporting unit (unit of analysis) and benchmarking/comparison issues.</td>
</tr>
<tr>
<td>2</td>
<td>Define general methodological rules like allocation, land use change, etc. As much as possible those rules shall be the ones defined in the OEF guide but some further specifications may be needed in the OEFSR.</td>
<td>This can be done after having identified the reporting unit (unit of analysis) but without considering benchmarking/comparison issues.</td>
</tr>
<tr>
<td>3</td>
<td>Carry out an OEF screening to identify the most relevant life cycle stages, the most relevant processes, and the most relevant life cycle impact categories. The identification of the most relevant impact categories, life cycle stages, processes and elementary flows shall be done according to the procedure in Annex D.</td>
<td>This should be done and reported at the sub-portfolio level (if applicable) but within the same OEFSR. Another OEFSR shall only be considered when the reporting unit (unit of analysis) is totally different.</td>
</tr>
<tr>
<td>4</td>
<td>Based on the results of the screening, define the requirements regarding data quality assessment and the collection of primary and secondary data and data gaps. This is one of the main issues to be solved in</td>
<td>This should be done and reported at the sub-portfolio level but within the same OEFSR. In case semi-specific data</td>
</tr>
</tbody>
</table>
the OEF in order to simplify and harmonize the OEF approach. On top of the guidance on data quality assessment scoring, the OEF shall clearly identify:

- **Primary/site-specific data** that shall be collected specifically by each company. Primary/site-specific data are significant regarding each environmental indicator and accessible for companies.
- **Secondary/generic data** for which sources shall be defined or default data provided.

The identification of data needs when drafting the OEF shall follow the requirements in Annex E.

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5 · Carry out the supporting studies, refine rules where necessary;
   · Complete the chapter B.9 on verification
   · Define all requirements needed for the benchmark, communication and comparison issues: reporting unit (unit of analysis) and reference flow, EF impact categories indicators, use stage scenarios and End of Life.

This could be done either at the sub-portfolio level or at the more general scope level.

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### 3.3.2. Relationship between OEFSRs and PEFCRs

Typically, OEFSRs tend to be wider in scope than PEFCRs (e.g. relationship between textile sector and T-shirts). Furthermore, OEFSRs are considering some aspects that would tend to be out of the boundaries of a PEFCR study (e.g. impacts related to company services, such as marketing).

At the same time, there is a need to ensure consistency between the methodological choices made in correlated OEFSRs and PEFCRs. As stated in the OEF Guide, "in theory, the sum of the PEFs of the products provided by an organisation over a certain reporting interval (e.g. 1 year) should be close to its OEF for the same reporting interval."

Accordingly, if there is a match between the PP or a sub-portfolio within an OEFSR and a PEFCR (e.g. a retailer has in its portfolio the sub-category "footwear", and there is a PEFCR on Footwear), the OEF screening (and, if appropriate, OEF studies) shall rely on the information in the PEFCR for modelling that product group within the portfolio. Further details are provided in Annex E (chapter E.4).

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17 During the pilot phase, this rule applies only if the data of the representative product are available before the OEFSR screening starts.
3.4. Definition of the "representative organisation"

Once the scope of the OEF sector has been agreed, the Technical Secretariat shall develop a “model” of the representative organisation existing in the EU market and belonging to the OEF sector at hand.

At least one representative organisation (RO) has to be defined for each OEF sector, as it forms the basis for the modelling in the OEF screening.

When within a sector the PP is varied or organisations differ considerably, several ROs may need to be identified. For example, the PP and production processes might differ significantly between micro enterprises and large companies operating in the same sector (e.g. handmade furniture vs. serial industrial production of furniture might not have the same hotspots; see also 3.3).

In summary, the RO, as a basis for the OEF screening study aims at:

1) Identifying the most relevant life cycle stages, processes and elementary flows;
2) Identifying most relevant impact categories;
3) Identifying hotspots;
4) Facilitating the comparison between organisations that fall within the same RO, where appropriate and feasible;
5) Facilitating the development of benchmarks, where appropriate and feasible.

The RO is the basis of the OEF screening which provides insight into the relevant life cycle stages, processes and impact categories for the sector (including the identification of processes for which primary data are requested).

The “model” of the RO shall contain a representative sample of the Product Portfolio and provide for appropriate sensitivity analysis. The reasoning behind the definition of the representative sample shall be clearly explained in section B.4.1 of the OEF SR. Lack of available data and low market shares shall not be used as an argument for exclusions.

The representative organisation also contributes to the definition of the benchmark for the sector (meaning that similar organisations within the same sector that have a similar Product Portfolio and that have a common reporting unit (unit of analysis) should be comparable to each other whenever appropriate and feasible).

There are two options for defining the RO:

1. It could be a **virtual** (non-existing) organisation. This is probably the best option when technologies and the composition of Production Portfolios within a sector are varied. The virtual organisation may be created calculated based on EU sales-weighted characteristics of technologies/ production processes/ organisation types, using the Product Portfolio as a reference. Solutions other than the average sales-weighted average may be explored during the pilot phase.

2. It could be a **real** organisation. This is probably the best option when the market is made up of different technologies/ production processes/ organisation types, but there is incomplete market and/or technical information. A real organisation considered to be as close as possible to the average organisation on the EU
market in the sector may be chosen as RO. Known variations may be explored through sensitivity analysis during the screening.

When the RO is a virtual one, there is a risk that the specificities of some technologies/production processes/organisation types are overlooked due to their small market share. At screening level this shall be avoided as hotspots relevant for the sector might not be retained.

The Technical Secretariat shall provide information about all the steps taken to define the RO model and report the information gathered taking the most appropriate measure to preserve the confidentiality of data (if this is required).

When defining the RO model, the Technical Secretariat should include the following elements to the extent possible:

- Description of the Product Portfolio;
- Bill of materials (BOM) or ingredients used, if appropriate;
- System boundary diagram covering the entire life cycle;
- Assumptions related to transportation systems;
- Assumptions related to use scenario (if relevant);
- Assumptions related to End of Life (EoL) (if relevant).

This information, if not already produced when asking the approval of the scope and RO to the Steering Committee, shall be in any case included in the report to be sent to the Commission describing all the modelling assumptions used for the screening (see 3.5.1).

The RO shall be presented and discussed with the relevant stakeholders during the first physical consultation meeting. The model and the modelling assumptions are the basis for the screening exercise.

**Box 1 - Overall recommendation regarding Representative Organisations (RO)**

- The RO(s) should be established at a level where they enable an identification of hotspots, most relevant life cycle stages, processes, elementary flows and environmental impact categories without creating a bias, e.g. by neglecting technologies or production processes which play a minor role in the market;
- The RO(s) should be established at a level where they can potentially enable a meaningful comparison between the environmental performance of similar organisations delivering a similar PP;
- Different ROs might need to be established at sub-portfolio level, if differences between PPs, technologies, production processes or organisations are wide;
- Variation of the PP within the same RO shall be investigated as appropriate;

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18 The system boundary shall be defined following general supply-chain logic. This shall include, at a minimum, site-level (direct) and upstream (indirect) activities associated with the Organisation’s Product Portfolio. The OEF boundaries shall by default include all supply-chain stages from raw material acquisition through processing, production, distribution, storage, use and EOL treatment of the Product Portfolio (i.e. cradle-to-grave). All processes within the defined OEF boundaries shall be considered. Explicit justification shall be provided if downstream (indirect) activities are excluded (e.g. use stage of intermediate products or products with an undeterminable fate).
3.4.1 Documents to be drafted before the 1st physical consultation

Below are summed up the documents to be drafted by the Technical Secretariat before the 1st physical consultation:

- Compiled overview of existing sector guidance documents and PCRs relevant for the sector;
- Overview report highlighting possible core conflicts between existing sector guidance, PCRs and OEF guides;
- Description of the scope (including the reporting unit/ unit of analysis and reference flow);
- Description of the representative organisation(s);
- Description of the model for the OEF screening studies.

After the approval of the document by the Steering Committee, the Technical Secretariat shall upload on the Stakeholder Workspace of the EF Wiki a table analysing the results of the consultation (comments received and how they have been dealt with).

3.5. OEF Screening

The OEF screening is necessary because it helps focussing data collection activities and data quality priorities for the OEF SR supporting study. The screening shall be carried out by the Technical Secretariat based on the "representative organisation” and in compliance with the procedure in Annex D.

The objective of the OEF screening is to pre-identify the following key information:

- Most relevant life cycle stages;
- Most relevant processes and elementary flows;
- Preliminary indication about the most relevant life cycle impact categories;
- Data quality needs;
- Preliminary indication about the definition of the benchmark for the sector or sub-categories in scope.

In case of wide PPs, the screening shall not allow for excluding any impact categories, life cycle stages or processes from future analysis. In such cases, the role of the screening is more to identify most relevant processes and life cycle stages (which in turn aims to assist prioritising action for managing environmental impacts in a PP), and related data needs.

The Technical Secretariat is encouraged to also perform the screening study by using top-down approaches, such as for example Environmentally Extended Input Output

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19 The requirements related to the OEF screening are not fully in line with what is included in the OEF Guide. This deviation is intended and it is admissible only in the context of the OEF pilot project.
In such cases, or for any alternative approach for screening proposed by the Technical Secretariat, a screening study shall also be done with the baseline approach as described in the OEF Guide and the results of the two studies shall be compared.

In case of a wide (cross-sectoral) PP containing products or services which are not under the control of the organisation (e.g. retail sector), TSs may use relevant studies and analysis as a means of identifying hotspots, relevant life cycle stages and processes. The source of such information should be primarily LCA-based (e.g. PEFCRs, basket-of-products approach, LCA studies). For further information gaps, results from input-output analysis and non-LCA studies may be used. In all cases, the analysis shall use an as consistent approach as possible.

The OEF screening can be based on readily available generic data (life cycle inventory databases, e.g. from commercial databases) fulfilling the data quality requirements as defined in the most recent version of the OEF Guide available. In particular, for the screening step a minimum “fair” quality data rating is required for data contributing to at least 90% of the impact estimated for each EF impact category, as assessed via a qualitative expert judgement. In an iterative approach with communication and feedback from the Technical Secretariat to all the participating stakeholders, the accuracy and representativeness of the model and data shall be improved. The model can be adjusted by introducing new processes/activities to be included. Generic data used in the first round can be replaced with specific data and other more representative (specific) databases along the process.

The results of the screening should be subject to sensitivity analysis and be also part of the OEF Screen Report review process.

3.5.1 Screening report

Each Technical Secretariat shall send to the Commission a screening report and the "model" developed through an LCA software for review. The objective of this review is to support the work of the Technical Secretariats helping them to identify at an early stage any deviation from the requirements of included in the OEF Guide or in the most updated version of this OEF Guidance document.

The screening report shall contain following information:

- Definition of the reporting unit (unit of analysis) and reference flow;
- Definition of the PP on which the screening will be carried out and explanation of the reasoning behind the representativeness of the products and processes chosen to represent the PP for the screening;
- System boundary diagram and, where feasible, a flow diagram for each life cycle stage with a clear link between all processes involved.

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20 [http://eplca.jrc.ec.europa.eu/?page_id=95](http://eplca.jrc.ec.europa.eu/?page_id=95)
• For each life cycle stage, a table with all processes involved with a clear identification of the source of the Life Cycle Inventory and calculation of the reference flow for each process\textsuperscript{21};

• Assumption about the use, re-use (if appropriate) and end-of-life scenario including the way the EoL formula is applied;

• Treatment of any multi-functionality issues encountered in the OEF modelling activity;

• Results of the sensitivity analysis with a clear identification of the minimum-maximum values used to perform it;

• Results for each EF impact category with a split per life cycle stage;

• If there is a justified deviation from Annex D, a description of the means of identifying the hotspots, relevant life cycle stages and processes, including the process of identifying data sources.

In case the Commission identifies any relevant issue, it will address them bilaterally with the concerned Technical Secretariat. If there are divergent opinions that cannot be reconciled, the issue will be raised at Technical Advisory Board level and, if necessary at Steering Committee level.

The detailed screening report shall be considered confidential by the Commission, thus it will be shared only within the Commission EF Teams and any reviewer contacted to support this task.

The decision from a Technical Secretariat not to produce such report or to produce incomplete reports would imply the application of condition b) listed in paragraph 2.6.

The software model used for the screening should be released by each TS to the Commission and remain freely accessible to any user also after the pilot phase is concluded. The Commission services will update the models by recalculating the results (including the benchmarks) based on the EF-compliant secondary datasets that will be tendered in the last part of the pilot phase.

3.6. Draft OEFSR

Based on the results of the OEF screening and the related virtual consultation, the Technical Secretariat shall produce a draft OEFSR.

The draft OEFSR is the guiding document to carry out the OEFSR supporting studies. It shall be drafted according to the requirements of the OEF Guide and the template provided in Annex B to this guidance document.

\textsuperscript{21} It is important to report the average value but also the min-max situation to be used to perform a sensitivity analysis for the hot spot identification. the amount of process shall also be expressed per reference flow and the calculation shall be detailed. Example: if the weight of a 2 liter bottle is 200g and the reference flow is one liter, then the amount of process expressed per reference flow is 100g (200/2).
3.7. End of Life (EoL) formula
In the framework of the EF pilot phase, when dealing with multi-functionality of products, the use of the EoL formula provided in Annex V to the OEF method shall always be used as baseline approach.

Alternative formulas may also be tested as “additional” compared to the baseline approach. A non-exhaustive list of possible formulas to be tested is provided below:

1) \( (1 - \frac{R_1}{2}) \times E_Y + \frac{R_1}{2} \times E_{\text{recycl}} + \frac{R_2}{2} \times (E_{\text{recycl}} \times E_Y - \frac{Q_d}{Q_E}) + \frac{R_2}{2} \times (E_{E_R} - \text{LHV} \times X_{E_R,\text{heat}} \times E_{S_E,\text{heat}} - \text{LHV} \times X_{E_R,\text{elec}} \times E_{S_E,\text{elec}}) + (1 - \frac{R_2}{2}) \times E_D - \frac{R_2}{2} \times E_D \)

Each parameter is explained in Annex V to the OEF method.

2) 100:0 approach (e.g. EN 15804:2012):
\( EF = (1 - R_1) \times E_Y + R_1 \times E_{\text{recycl}} + R_3 \times (E_{E_R} - \text{LHV} \times X_{E_R,\text{heat}} \times E_{S_E,\text{heat}} - \text{LHV} \times X_{E_R,\text{elec}} \times E_{S_E,\text{elec}}) + (1 - R_2 - R_3) \times E_D \)

3) 0:100 approach (e.g. BPX 30-323-0 for open loop system recycling if the raw materials market is in disequilibrium):
\( EF = E_Y + R_3 \times (E_{\text{recycl}} \times E_Y - E_Y \times \frac{Q_d}{Q_E}) + R_3 \times (E_{E_R} - \text{LHV} \times X_{E_R,\text{heat}} \times E_{S_E,\text{heat}} - \text{LHV} \times X_{E_R,\text{elec}} \times E_{S_E,\text{elec}}) + (1 - R_2 - R_3) \times E_D \)

In case alternative EoL formulas are also tested, a sensitivity analysis shall be carried out by the Technical Secretariat and the results documented and discussed during the consultation phases.

The end-of-life scenario shall be based on the real situation currently in place and not on possible improvement of the market and the treatments. Recycling rates should be defined per application, rather than per material. For recycling, substituted virgin material and efficiency of the recycling process shall be defined.

3.8. Data quality requirements
Data quality requirements shall be clearly specified in the OEFSR. Data quality requirements apply to both primary/ specific23 and secondary/ generic data24. The identification of data needs when drafting the OEFSR and implementing the supporting studies shall follow the requirements detailed in Annex E in at least one supporting

22 In addition to the explanation available in the OEF method for each parameter the following clarification is needed for the term E*D. The term E*D is a part of disposal, but not of the product under investigation, but as form of a “avoided burden” due to the avoided disposal in the previous life cycle due to the use of recycled content in the current life cycle. Therefore, “-R1/2xE*D” is a credit associated with the recycled content.

Moreover, it should be noted that ED and ED* refer to landfill and/or incineration without energy recovery.

23 Specific data refers to directly measured or collected data representative of activities at a specific facility or set of facilities. It is synonymous to “primary data”.

24 Generic data refers to data that is not directly collected, measured, or estimated, but rather sourced from a third-party life-cycle-inventory database or other source that complies with the data quality requirements of the OEF Guide.
study. All supporting studies that do not follow Annex E requirements shall follow the baseline approach as detailed in Table 4 of the OEF method.

The OEFSR may specify additional criteria for the assessment of data quality (compared to the OEF criteria). Moreover, the OEFSR may specify more stringent data quality requirements, if appropriate for the product category in question.

### 3.9. Secondary data

For the OEF screenings and the OEF supporting studies carried out in the context of the EF pilot phase the Technical Secretariat may use any source for secondary data, which is compliant with the data quality requirements set out in this guidance.

The Technical Secretariat shall send to the European Commission a version of the OEFSR that includes the list of the secondary datasets to be used during the supporting studies. This version of the OEFSR will be transmitted to the verifiers. If data acquired by the European Commission will be available on time to use in supporting studies, these shall be used for the processes covered.

The final OEFSR shall provide the exact secondary data to be used in the calculation of the OEF Profile to avoid differences in OEF studies stemming from the use of different secondary data.

For all final OEFSRs developed during the EF pilot phase secondary data shall those provided for free by the Commission or created by the Technical Secretariat and provided in the OEFSR. In case a secondary dataset is not available among those provided by the Commission, they shall be provided through one of the following solutions (in hierarchical order):

1. To use one of the EF compliant datasets freely available in a Life Cycle Data Network node and considered as being a good proxy for the missing dataset;
2. To use another dataset coming from a free or commercial source. This dataset shall have a re-calculated DQR not higher than required in the Data Needs Matrix.

Any deviation from the hierarchy above shall be duly justified in the final OEFSR. Any other source of secondary data shall not be used in the final OEFSR.

### 3.10 Data confidentiality management

Business data, gathered during the OEFSR development, could be of confidential nature because of competitive business aspects, intellectual property rights or similar legal restrictions. Such confidential data shall not be made public under any circumstance.

### 3.11 Documents to be submitted to the virtual consultation

The documents to be submitted to the virtual consultation are:

- OEF screening report, and

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25 Such decision will be a "control point" for the verifier.
The OEF screening report, apart from the quantification of the screening results, shall include the following information:

- description of the supply chain (processes) and scenarios (upstream, downstream, transport),
- results of the sensitivity analysis on allocation options,
- where and why generic data are to be preferred to specific data in the foreground system (if relevant),
- the environmental impact category selection process,
- additional environmental information (if needed),
- data gaps
- life cycle inventories and characterised results for the representative organisation (for each impact category and life cycle stage).

The decision to release normalised and weighted results remains within the TS. In case it is decided to publish the normalised and weighted results, then the following disclaimer shall be added to the screening report:

"Within the Environmental Footprint (EF) pilot phase normalisation and equal weighting were foreseen to be used in the EF screenings to identify the most relevant impact categories. The use of normalisation and weighting for this purpose remains the objective for the EF pilots and beyond. However, currently PEF screening results after the normalisation and equal weighing present some inconsistencies stemming from errors at various levels of the assessment. Therefore, screening results after normalisation and equal weighting are not sufficiently robust to apply for product comparisons in an automatic and mandatory way in the Environmental Footprint (EF) pilots, e.g. to identify the most relevant impact categories. The interpretation of the results reflects these limitations.

To avoid potential misinterpretation and misuse of the EF screening results we highlight that the results after normalisation and equal weighting, - without further error checking and possibly corrections, - are likely to overestimate or underestimate especially the relevance of the potential impacts related to the categories Human toxicity - cancer effect, Human toxicity - non-cancer effect, Ecotoxicity for aquatic fresh water, water depletion, resource depletion, ionizing radiation and land use."

In case it is decided not to publish the normalised and weighted results in the screening, but to make them available in a confidential report, then the following disclaimer shall be added to the screening report:

"Within the Environmental Footprint (EF) pilot phase normalisation and equal weighting were foreseen to be used in the EF screenings to identify the most relevant impact categories. The use of normalisation and weighting for this purpose remains the objective for the EF pilots and beyond. However, currently PEF screening results after
the normalisation and equal weighing present some inconsistencies stemming from errors at various levels of the assessment. Therefore, screening results after normalisation and equal weighting are not sufficiently robust to apply for product comparisons in an automatic and mandatory way in the Environmental Footprint (EF) pilots, e.g. to identify the most relevant impact categories.

To avoid any potential misinterpretation and misuse of the EF screening results the normalised and equally weighted results have been placed in a confidential annex. The access to this confidential annex has to be guaranteed to the following stakeholders: European Commission, Environmental Footprint Steering Committee, Environmental Footprint Technical Advisory Board, Environmental Footprint Helpdesk, PEFCRs/OEFSRs reviewers, Environmental Footprint screening reviewers, supporting studies verifiers, and EF pilot phase independent reviewers. It is up to the Technical Secretariat of the EF pilot to decide to grant access to information contained in the confidential annex also to other stakeholders."

After the approval of the document by the Steering Committee, the Technical Secretariat shall upload on the Stakeholder Workspace of the EF Wiki a table analysing the results of the consultation (comments received and how they have been dealt with).

### 3.13. OEFSR supporting studies

The Technical Secretariat shall encourage the participants/stakeholders to carry out at least 3 OEF studies (and at least one for each sub-portfolio/ representative organisation covered by the OEFSR) compliant with the most recent version of this guidance available at the time of the start of the studies, and with any specific requirement included in the draft OEFSR, comprising all environmental impact categories and having a full coverage in terms of life cycle stages and processes. These studies are referred hereafter as OEFSR supporting studies. They shall be based on existing, real organisations. The template recommended for the supporting studies is available in Annex C. Even if the template is not followed, the PEFCR supporting study shall include all content included in the Annex C template.

OEFSR supporting studies as well as OEF studies based on an OEFSR shall contain a reference to the OEFSR and the version of the related EF Guidance that they comply with.

The goal of the OEFSR supporting study shall clearly state that it is done as supporting evidence to the OEFSR development, and the intended audience. The studies should always be done under the assumption that their result would be used for the development of an OEFSR that could support comparisons or comparative assertions intended to be disclosed to the public.

The OEFSR supporting studies will be used to test the pertinence and implementability of the draft OEFSR, including but not limited to the identified the most relevant environmental impacts, issues related to data collection and quality verification.

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26 In case of conflicting requirements between the OEF Guide and this Guidance, the former prevails over the latter unless differently agreed between the Steering Committee and the Commission on a case by case basis.
requirements. For this reason, each OEFSR supporting study shall implement the procedures explained in Annex D and E shall be implemented\textsuperscript{27}. Moreover, the uncertainty analysis carried out on the results of the OEFSR supporting studies may contribute to the identification of appropriate performance classes (where relevant and appropriate).

The results of the OEFSR supporting study (including confidential information) will be accessed only by the external verifiers, the OEFSR reviewers and the EF Team in DG ENV and JRC IES. Otherwise it shall remain confidential, unless differently agreed by the company performing the study. The company performing the study may grant access to other stakeholders upon request.

Besides the confidential report (template in Annex C in its full version), a second report shall be produced that describes the main outcomes of the OEFSR supporting study without disclosing confidential information. For this, chapter 0, 7.2 and 9 can be removed from the report, while chapter 6 on the results may be replaced by a non-confidential summary. This second report will be made available to the Technical Secretariat, the Technical Advisory Board and the Steering Committee.

The second report (without confidential information) or a condensed version thereof can be used in the communication phase (e.g. for substantiating information provided on a factsheet).

The information included in the supporting study reports shall only be used for activities related to the implementation of the EF pilot phase in the period 2013-2017.

Based on the OEFSR supporting studies, the Technical Secretariat shall define whether the OEFSR supports comparison between organisations in the sector based on OEF or key performance indicators which relate EF impact category results to a factor that is relevant to the organisation (e.g. climate change impacts/ square meters of retail place).

This decision will be taken on the basis of factors such as significance of differences between organisations operating in the same sector or uncertainty of OEF performance information.

The decision on whether or not an OEFSR supports comparisons between organisations shall be subject to the OEFSR Review.

In case the OEFSR does not support comparisons between organisations, this shall be clearly stated in the document, and steps outlined below that are related to this feature shall not be included into the OEFSR.

3.13.1. Identification of the most relevant Impact Categories

The identification of the most relevant impact categories shall be done according to the procedure explained in Annex D to this Guidance and according to additional indications provided in the OEFSR.

\textsuperscript{27}The implementation of the procedure in Annex E shall be guaranteed in at least 1 supporting study per pilot.
For reporting purposes, the number of impact categories to be covered shall be decided based on the outcomes of the OEF screening, OEF supporting studies and any additional environmental information available, also taking into account the comments gathered during the consultations. For sectors producing intermediate products and for sectors covering a wide range of products (e.g. retail), all the environmental impact categories shall be addressed. The rationale for the choice done and any deviation from this general rule shall be adequately justified in the final OEFSR.

### 3.13.2. Normalisation and weighting

In the framework of the EF Pilot phase the use of normalization and weighting factors is tested.

The normalization factors to be used are listed in Annex A to this Guidance.

Until there is an agreed set of European weighting factors, all impact categories shall receive the same weight (weighting factor = 1, hereafter baseline approach).

Alternative weighting approaches may also be tested as “additional” compared to the baseline approach. In case alternative weighting systems are also tested, a sensitivity analysis should be carried out and the results documented and discussed during the consultation phases.  

### 3.14. Confirmation of the benchmark and definition of classes of environmental performance

For the supporting studies, the benchmark shall be calculated for all 15 impact categories separately.

The final OEFSR, building on the results of the OEF supporting study and the comments gathered through the consultation phases, shall describe the uncertainties common to the sector and should identify the range in which results could be seen as not being significantly different in comparisons or comparative assertions.

Within the framework of the EF pilot phase each Technical Secretariat should define 5 classes of environmental performance (from A to E, with A being the best performing class). Unless calculated differently, the benchmark is the characterised result of the OEF Profile of the representative organisation(s) and it always represents class C. The definition of the remaining classes should be based taking into account the estimated spread (including uncertainty) around the benchmark results, which might differ from impact category to impact category and an estimation of the expected environmental performance for the best and worst in class organisations.

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28 A set of alternative normalisation and weighting factors are provided by the JRC for testing purposes in the supporting studies. These are available on the EF Wiki: [https://webgate.ec.europa.eu/fpfis/wikis/download/attachments/66618509/Normalization%20and%20weighting%20factors%20for%20testing%20EC-JRC_v0.2.xlsx?api=v2](https://webgate.ec.europa.eu/fpfis/wikis/download/attachments/66618509/Normalization%20and%20weighting%20factors%20for%20testing%20EC-JRC_v0.2.xlsx?api=v2) (please note that you need to be signed in with ECAS to access the document directly). The recently released reports related to the indicator work by CML might be also helpful to identify further options to address the weighting of impact categories. They are to be found on JRC website at: [http://lct.jrc.ec.europa.eu/pdf-directory/ReqNo-JRC67216-LB-NA-24985-EN-N.pdf](http://lct.jrc.ec.europa.eu/pdf-directory/ReqNo-JRC67216-LB-NA-24985-EN-N.pdf)
All relevant assumptions regarding the identification of the benchmark and the classes of environmental performance shall be documented in the OEFSR, be part of the virtual consultation process and of the review process.

### 3.15 Disclosure & Communication

The results of an OEF study carried out in compliance with the OEF Guide or, where existing, with a specific OEFSR, are called “OEF Profile”. Whenever an OEFSR exists for a certain sector, then its requirements shall be fulfilled if the information included in the OEF Profile is meant to be used for communication purposes.

The OEF Profile of an organisation can only be reported or otherwise communicated if it contains a minimum list of primary, organisation-specific information. In particular, each OEFSR shall specify the minimum list of organisation-specific processes that shall be included in the boundaries and for which and company specific primary data shall be collected.

The OEF Profile could be communicated in different forms, depending on the target audience and the objective of the communication. For example, the OEF Profile could be communicated through an OEF external communication report (e.g. self-standing OEF report, OEF information provided as part of a sustainability report, answer to a stakeholder or investor questionnaire) or an OEF performance tracking report (see more detailed description of these vehicles below). This list is not exhaustive. Further vehicles may be chosen from the examples in the Background document on Communication²⁹ or may be suggested by the Technical Secretariat or stakeholders.

For reporting purposes, the number of impact categories to be covered shall be decided based on the outcomes of the OEFSR screening, OEFSR supporting studies and any additional environmental information available, also taking into account the comments gathered during the consultations. For sectors producing intermediate products and for sectors covering a wide range of products (e.g. retail), all the environmental impact categories shall be addressed.

Independently from the vehicle chosen, when environmental footprint information is used for communication purposes, at least the characterised results for all impact categories shall be available to the public through freely accessible information sources (e.g. website).

In the context of the EF pilot phase, the OEFSRs shall also include a specific section describing communication vehicles to be tested, and discussing how to target information depending on the addressee, or, if relevant, how addressees can translate information to their needs (e.g. investors). This section shall be part of the consultation process led by each Technical Secretariat.

The chosen communication vehicles shall be tested by the companies carrying out OEFSR supporting studies. The testing may be organised horizontally by the Technical Secretariat.

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The length of the testing period should be proportionate to the approach used. For brick-and-mortar (real market) tests targeted to consumers it is suggested to run the test at least for 6 months. For focus groups or online tests a duration of 2-3 months is considered sufficient.

This section shall be tested during the last year of the pilot phase. More details about this element are available in a separate background document\textsuperscript{30}. This document also contains a longer list of examples of communication vehicles that may be tested.

### 3.15.1. OEF external communication report

The OEF external communication report shall include all reporting elements indicated in chapter 8 of the OEF Guide, whether used as part of a sustainability report or as a self-standing report. In case OEF information is provided based on a stakeholder or investor questionnaire, the template provided by the investor may be used.

The Technical Secretariat shall propose and justify any deviations from the default reporting requirements, and any additional and/or differentiating reporting requirements that depend on, for example, the type of applications and the type of organisation being assessed.

The OEFSR shall specify whether the OEF results shall be reported separately for each of the selected life cycle stages.

### 3.15.2. OEF performance tracking report

OEF communication may take the form of an OEF performance tracking report, which allows for the comparison of an OEF Profile of the same organisation over time with respect to its original or previous OEF Profile.

The communication of the performance tracking report shall be based on a specific OEF study and OEFSR requirements for that sector (if existing). When communicating a change in an OEF Profile to the public, the main contributions to the change shall be specified.

For example, communication of performance tracking may be made when they are due to:

- a) Improvements made by the reporting organisation;
- b) Selection of other suppliers;
- c) Deliberate and verifiable improvements made by suppliers;
- d) Improvements in the use stage and in the end-of-life stage made by improved product design or an improved end-of-life procedure;
- e) Changes due to process improvements.

Changes due to seasonal changes\textsuperscript{31} or finding better secondary data sources shall not be reported as performance changes.


\textsuperscript{31}
The communication may be supported by a graphical representation of the processes in the life cycle of the organisation’s product portfolio, which allows an understanding of the system boundary, the contribution to the OEF Profile and the changes included.

3.16. Verification of the OEFSR supporting studies

The OEFSR review and the independent verification of the supporting studies are two separate processes (for the OEFSR review see Section 4).

The verification of the OEFSR supporting studies will be conducted before their public release. The costs of the verification tests will be covered by the European Commission. Due to the limited resource available, only about 1/3 of supporting studies will be subject to verification. At least 1 OEFSR supporting study per each pilot will be verified. The European Commission will decide which supporting studies will be verified and inform the companies concerned directly.

The verification will take place in several ways, for example by on-site checking, reviewing calculations, mass balance calculations, or cross-checks with other sources. Different approaches will be tested in order to identify the optimal balance between completeness of verification and its costs.

The objectives of the verification are:

- To assess compliance of the OEFSR supporting study with the OEF Guide, the latest version of this Guidance at the time when the supporting study was started, and the reference OEFSR;
- To verify the traceability and validity of the information/data, both primary data of the organisation carrying out the study or of its suppliers, and other forms of secondary data used in the supporting studies. This task might involve cross-check comparison of documents (e.g. invoices, bills of sale, etc.) both provided by the organisation producing the OEF Profile and the suppliers. For the most relevant data it might also be required to perform on-site document checks and inspections at the place where the supplier is located.
- The presentation of environmental performance included in the OEF Profile;
- Other additional environmental information included in the OEF Profile, if any.

In verifying the underlying data of the life cycle inventory, the verifier shall examine that:

- The unit processes are defined as specified in the reference OEFSR;
- The source of input and output data (that is, referenced literature, vendor-supplied databases, and LCI databases) used for a unit process are at least of the quality requested in the reference OEFSR;
- All relevant information is documented for each unit process, i.e. being consistent and understandable to enable an independent evaluation of the relevance of the data in accordance to the reference OEFSR. In particular the verifier should check that any additional documentation of the LCA process

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31 Seasonal changes are e.g. seasonal variation in sales of a product that can impact production rate and hence efficiency of the production plant, seasonal variation in agricultural production.
data (sources, correspondence, traceable references to origin, and so forth) is provided, especially if this information influenced LCA process data selection;
- The Data Quality Requirements are met.

In case of existence of secondary data in the results which have been already verified according to rules in the OEF Guide, these shall not be subject for further verification regarding the criteria methodological consistency, completeness and uncertainty. However the appropriateness of the use of these data for the specific organisation needs to be verified. This verification needs to cover the aspects of time, geographical and technological representativeness of the secondary data for use in the specific OEF Profile.

In verifying the results from the impact assessment, the verifier shall check that the calculations are made in a correct way based on the life cycle inventory and recommended characterisation, normalisation and weighting factors.

With regard to checking information of the life cycle inventory, the verifier shall make use of sample checks for the unit processes to check their conformance to original data sources. The organisation shall provide the verifier with information about the underlying data and calculations carried out upon request.

Sample checks may preferably be carried out for those unit processes having a significant influence on the life cycle inventory, and randomly chosen unit processes.

In case of complex organisations, sampling methods for the OEF study shall be used. If a specific sampling method has been developed by an organisation, this method shall be verified by a third party verifier and specified in the OEF Profile.

Companies (or their associations) that intend to use the OEFSR supporting study results for external communication either during (in the form of a real market communication test) or after the pilot phase shall implement the comments of the verifiers before starting such communication activity.

The details of the verification approaches that will be tested during the EF pilot phase will be available at a later stage. The results of the preparatory study on this issue are available.

3.16.1 Competences of the verifier

Please refer to the OEF Guide, section 9.3. During the EF pilot phase, the verifier qualifications shall be considered as indicative only.

3.17. Time validity of the OEFSR

The validity of each OEFSR should be related to the specificities of the sector (e.g. market situation, legislation, speed of innovation cycle). A validity of four years should

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be the standard, but deviations shall be considered and discussed during the virtual consultation stages.

4. OEFSR Review
The Technical Secretariat shall set up an independent third-party review panel composed of a minimum of three members (i.e., a chair and two members) for OEFSR review. The panel should be comprised of at least one LCA expert (preferably with a background on the OEF sector under consideration and organisation-related environmental aspects), one representative from NGOs and one industry expert. One member shall be selected as the chair. The panel members shall not have conflicts of interests with regard to the organisations directly or indirectly subject to review and cannot be members of the Technical Secretariat.

4.1. Reviewer qualifications
Please refer to the OEF Guide, section 9.3. During the EF pilot phase, the reviewer qualifications shall be considered as indicative only.

4.2. Procedure for review
With the assistance of the Technical Secretariat, the OEFSR Review Panel shall meet to discuss the OEFSR and perform its review. Comments shall be generated and may be general, editorial or technical. The general comments apply to overarching issues affecting the entire OEFSR whereas editorial and technical comments may apply to specific sections within the OEFSR.

Within a time period agreed upon by the OEFSR Review Panel and the Technical Secretariat not to exceed 30 days, the OEFSR Review panel shall meet to generate their comments that are compiled in the Review Report.

The Review Report shall be sent to the Technical Secretariat for their review and discussion. A copy of the report shall also be sent to the Steering Committee.

4.3. Review criteria
The reviewers shall investigate whether the OEFSR has been developed in accordance with the requirement provided in this Guidance and supports creation of credible and consistent OEF Profiles. In addition, the following criteria shall also apply:

- The OEFSR is consistent with the guidelines provided in the OEF Guide and the latest version available of this Guidance and deviations are justified;
- Reporting unit (unit of analysis), allocation and calculation rules are adequate for the OEF sector under consideration;
- Primary and secondary datasets used in the screening and the supporting studies are relevant, representative, and reliable,
- Selected LCIA indicators and additional environmental information are appropriate for the OEF sector under consideration and the selection is done in accordance with the guidelines stated in this Guidance and the OEF Guide;
- Both LCA-based data and the additional environmental information prescribed by the OEFSR give a description of the significant environmental aspects associated with the OEF sector;
- Whether the OEFSR can or cannot form the basis of comparison between different organisations and whether this is appropriately justified; if yes, whether the benchmark and performance classes are correctly defined.

4.4. Review report
A review report should be drafted based on all the comments made by the review panel with proposal for changes.

4.5. Addressing reviewer comments
The Technical Secretariat shall review the OEFSR Review Panel's comments/proposals and develop a response for each. Using the OEFSR Review Report, the Technical Secretariat generates responses that may include:

- Acceptance of the proposal: change draft OEFSR to reflect proposal;
- Partial acceptance of the proposal: change draft OEFSR with modification to original proposal;
- Supporting commentary why the Technical Secretariat did not agree with the proposal;
- Return to the OEFSR Review Panel with further questions on the comments/proposals.

If any response by the Technical Secretariat is not accepted by the OEFSR Review Panel, then the Review Report and the response of the Technical Secretariat shall be sent to the Technical Advisory Board and Steering Committee and the issues will be resolved at that level.

5. Documents to be drafted before the final consultation
The Technical Secretariat shall submit the final OEFSR into the consultation (virtual and/or physical). This document shall be drafted according to the template provided in Annex B, including all annexes thereof. At least the following documents shall be completed:

- Final draft OEFSR (including data availability and quality, conclusions and recommendations on communication, verification rules, and, where relevant and appropriate, benchmark and classes of performance);
- OEF compliant dataset(s) of the representative organisation as modelled in the screening and eventually modified based on the supporting studies' results.

A table or report with changes based on the final consultation and the PEFCR review shall be included for the Technical Advisory Board and Steering Committee to prepare the examination of the documents.
After the approval of the document by the Steering Committee, the Technical Secretariat shall upload on the Stakeholder Workspace of the EF wiki a table analysing the results of the consultation (comments received and how they have been dealt with).
Annex A – Normalization factors

In the context of Life Cycle Assessment (LCA), according to ISO 14044 (ISO 2006), normalization is an optional step of Life Cycle Impact Assessment (LCIA) which allows the practitioner expressing results after characterization using a common reference impact. This supports the comparison between alternatives using reference numerical scores. The normalization factors express the total impact of a reference region for a certain impact category (e.g. climate change, eutrophication, etc.) in a reference year. The same applies to Environmental Footprint.

This annex provides normalization factors (NFs) for the implementation of the EU Environmental Footprint (EC - European Commission, 2013). The calculation of normalization factors is based on a refinement and update of the ‘Resource Life Cycle indicators’ dataset (EC - JRC, 2012b), used as inventory. These indicators were developed within the Life Cycle Indicators framework (EC - JRC, 2012a) in the context of the Roadmap to a resource efficient Europe, within the Flagship initiative - A resource-efficient Europe of the Europe 2020 Strategy. The aim of the Life Cycle Indicators is to monitor the environmental impacts associated with European production and consumption, as well as waste management within the EU, by including also impacts from trade (imports and exports).

The Life Cycle Indicators are based on the collection of data related to territorial emission (domestic inventory) complemented with process based LCA for representative traded goods. In fact, the indicators have been designed to provide information on the environmental impacts linked to European consumption and production. The ‘apparent consumption’ approach is adopted by accounting for both the domestic extractions of resources and emissions in the EU27 as well as the impacts due to international trade (both imports and exports). For the domestic inventory, the data gaps related to the life cycle inventory have been overcome adopting a series of estimation strategies (details on estimation strategies are reported in EC-JRC, 2013).

Both for the domestic inventory and for those resulting from modelling the trade, the ILCD set of impact assessment methods and related characterisation factors (EC- JRC, 2011) have been applied for calculating normalization factors. The elementary flows adopted for the calculation of the normalization factors are also derived in particular from the Life Cycle indicators for Resources (EC - JRC, 2012b). Compared to the original report, updated data for 2010 at EU 27 level and at country level has been used.

The full report describing the main methodological steps towards the calculation of the normalization factors will be soon available, and the link to the document will be provided in this document. The original goal of the study was to develop normalization factors that are based on an apparent consumption approach as developed in the prototype life cycle indicators work. The impacts related to imported goods should be added and the impacts related to exported goods should be deducted from the domestic (territorial) figures for EU27. The consideration of international trade in normalization factors would allow getting a more comprehensive picture of the actual environmental impacts due to EU production and consumption processes.

However, the study has indicated that at present the level of methodological development and data availability are deemed not sufficiently mature for the results of impacts associated with trade to be recommended for use as normalization values in the
context of Environmental Footprint or Life Cycle Assessments. The main reasons are:
i) significant variability in the results applying different methods for selection and up-
scaling of products; ii) ratio import to domestic seems to be underestimated.

The recommendation for normalisation factors in the Environmental Footprint context
is therefore to rely on domestic figures for 2010 as they have been identified as the
more robust basis for this kind of application.

Table A.2 provides the recommended normalisation factors for the EU 27 related to
domestic inventory in 2010. Per person Normalisation factors have been calculated
using Eurostat data on EU 27 population in 2010 (Eurostat, 2013a).

Table A.2 Recommended Normalisation factors for EU 27 (2010) based on
domestic inventory

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Unit</th>
<th>DOMESTIC</th>
<th>Normalisation Factor per Person (domestic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change</td>
<td>kg CO2 eq</td>
<td>4.60E+12</td>
<td>9.22E+03</td>
</tr>
<tr>
<td>Ozone depletion</td>
<td>kg CFC-11 eq</td>
<td>1.08E+07</td>
<td>2.16E-02</td>
</tr>
<tr>
<td>Human toxicity - cancer effects</td>
<td>CTUh</td>
<td>1.84E+04</td>
<td>3.69E-05</td>
</tr>
<tr>
<td>Human toxicity - non cancer effects</td>
<td>CTUh</td>
<td>2.66E+05</td>
<td>5.33E-04</td>
</tr>
<tr>
<td>Acidification</td>
<td>mol H+ eq</td>
<td>2.36E+10</td>
<td>4.73E+01</td>
</tr>
<tr>
<td>Particulate matter</td>
<td>kg PM2.5 eq</td>
<td>1.90E+09</td>
<td>3.80E+00</td>
</tr>
<tr>
<td>Ecotoxicity - freshwater</td>
<td>CTUe</td>
<td>4.36E+12</td>
<td>8.74E+03</td>
</tr>
<tr>
<td>Ionizing radiation HH</td>
<td>kbq U235 eq</td>
<td>5.64E+11</td>
<td>1.13E+03</td>
</tr>
<tr>
<td>Photochemical ozone formation</td>
<td>kg NMVOC eq</td>
<td>1.58E+10</td>
<td>3.17E+01</td>
</tr>
<tr>
<td>Eutrophication - terrestrial</td>
<td>mol N eq</td>
<td>8.76E+10</td>
<td>1.76E+02</td>
</tr>
<tr>
<td>Eutrophication - freshwater</td>
<td>kg P eq</td>
<td>7.41E+08</td>
<td>1.48E+00</td>
</tr>
<tr>
<td>Eutrophication - marine</td>
<td>kg N eq</td>
<td>8.44E+09</td>
<td>1.69E+01</td>
</tr>
<tr>
<td>Land use</td>
<td>kg C deficit</td>
<td>3.74E+13</td>
<td>7.480E+04</td>
</tr>
<tr>
<td>Resource depletion - water</td>
<td>m3 water eq</td>
<td>4.06E+10</td>
<td>8.14E+01</td>
</tr>
<tr>
<td>Resource depletion - mineral, fossil</td>
<td>kg Sb eq</td>
<td>5.03E+07</td>
<td>1.01E-01</td>
</tr>
</tbody>
</table>

* please notice that the PEF Guide use m³ (a factor 1000 more than the Normalisation Unit kg
Annex B – OEFSR template

Template for Organisation Environmental Footprint Sector Rules in the Pilot Phase

This template is mainly based on the following documents:

- Product Category Rule Template, Version 1.0, April 16, 2013.\(^{33}\)
- Organisation Environmental Footprint (OEF) Guide (2013)\(^{34}\) and
- The Guidance for the implementation of the EU Organisation Environmental Footprint (OEF) during the Environmental Footprint (EF) pilot phase (2013)\(^{35}\)

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Introduction

The Organisation Environmental Footprint (OEF) Guide provides detailed and comprehensive technical guidance on how to conduct an OEF study. OEF studies may be used for a variety of purposes, including in-house management and participation in voluntary or mandatory programmes.

This OEFSR shall be used in parallel with the OEF Guide. Where the requirements in this OEFSR are in line with but at the same time more specific than those of the OEF Guide, such specific requirements shall be fulfilled.

The use of the present OEFSR is optional for OEF guide in-house applications, it is recommended for external applications without comparison/comparative assertions, while it is mandatory for external applications with comparisons/comparative assertions.

In the latter two application contexts, organisations are to fulfil the requirements of this OEFSR document from section B.7 to B.10.

B.1 General information about the OEFSR

B.1.1 Technical Secretariat
[List with names and affiliations of members of Technical Secretariat.]

B.1.2 Consultation and stakeholders
[Cumulative description of participants and statistical figures related to each consultation. Mention the address of the web page related to the OEFSR development]

B.1.3 Date of publication and expiration
Version number:

Date of publication/revision:

Date of expiration:
[Provide the date of publication of the OEFSR and date of expiration. Write out the date (e.g., 25 June 2015) to avoid confusion of the date format.]

**B.1.4. Geographic region**
[Identify the name of the country or countries for which the OEFSR is valid]

**B.1.5 Language(s) of the OEFSR**
[OEFSR shall come in English. If the OEFSR is made available in other languages, then title, revision number and date of issue should be clearly indicated in the translated OEFSRs as well as the name of the translator(s) and its/their accreditation number, if possible, or name of the (public) institution providing the translation].
The original in English supersedes translated versions in case of conflicts.

**B.2 Methodological inputs and compliance**
[List the OEF Guide that the OEFSR is in conformance with, including year of publication or version. List other sector guides the OEFSR is compliant with].

[Identify the sectorial guidance name, identification number (if applicable) and date of issue, program operator name (if applicable).]

**B.3 OEFSR review and background information**

**B.3.1 OEFSR review panel**
[Provide the name, contact information and affiliation of the chair and the other members of the review panel.]

**B.3.2 Review requirements for the OEFSR document**
[Specify the requirements for the crucial review of this OEFSR document].

Specify if this OEFSR supports comparisons between organisations. In the case this OEFSR supports comparisons and comparative/assertions, a benchmark and classes of environmental performance shall be identified.

**B.3.3 Reasoning for development of OEFSR**
[Describe application contexts of OEFSR. Describe any attempt to harmonize OEFSR or align with existing sector guidance].

**B.3.4 Conformance with the OEFSR Guidance**
[Summarize the conformity assessment against the ‘Guidance for the Implementation of the EU OEF during the Environmental Footprint (EF) pilot phase’].

**B.4 OEFSR scope**

**B.4.1 Product Portfolio (reporting unit (unit of analysis))**
[Provide Product Portfolio. Specify requirements regarding the reference flows of the OEF].
B.4.2 Sector
[Provide the name and description of the sector, with reference to the characteristic sectorial Product Portfolio.]

B.4.3 Sector classification (NACE)
[Based on the sector, provide the corresponding definition using NACE codes. OEFSRs shall be based on at a minimum a two-digit code division of NACE codes (default option). OEFSRs may allow for (justified) deviations (e.g. allow for three digits) if the complexity of the sector demands it. Where multiple production routes for similar Product Portfolios defined using alternative NACE codes are identifiable, the OEFSR shall accommodate all such NACE codes. Provide specification of the specific edition of NACE. Identify the sub-sectors not covered by the OEFSR, if any.]

B.4.4 Representative organisation
[Provide a short description of the representative organisation, by summarizing information reported in Annex I, where the steps taken to define the “representative organisation” are fully detailed.

In this section, specify if the representative organisation is a real or a virtual (“average”) organisation and describe the Product Portfolio]

B.4.5 System boundaries – life-cycle stages and processes

Organisational boundaries
[Define Organisational boundaries: specify the characteristic processes, activities and facilities to be included in the Organisational boundaries (i.e. to highlight those activities under the control of the organization)].

OEF boundaries
[Specify all attributable life-cycle stages and processes that can be associated to the organisation. (Products and waste streams should be clearly identified). Justify with reasoning any deviation from the default cradle-to-grave approach (e.g. exclusions of life cycle stages and processes), referring to the results of the screening and approval processes for decisions taken.]

System diagram
[Provide a system diagram clearly indicating the processes that are included in the Organisational boundaries. Provide a second diagram indicating the OEF boundaries]

System boundaries - upstream processes/scenarios
[Specify upstream scenarios (e.g. raw material production, raw material extraction). If necessary, a more detailed description can be provided in Annex IV (optional).]

System boundaries - downstream processes/scenarios
[Specify downstream processes in terms of selected scenarios for e.g. use phase and end of life. If necessary, a more detailed description can be provided in Annex V (optional).]
B.4.6 Selection of the EF Impact categories indicators
[If applicable, identify the most relevant EF impact categories for the product portfolio in scope].

All the background information concerning the rationale for the selection the additional environmental information shall be provided in Annex XI to the OEFSR.

B.4.7 Additional environmental information
[Specify which additional environmental information shall/should be included. Reference all methods used to report additional information.]

All the background information concerning the rationale for the selection the additional environmental information shall be provided in Annex XI to the OEFSR.

B.4.8 Assumptions/limitation
[Report sector-specific limitations and define the assumptions necessary to overcome these.]

B.5 Life cycle inventory

B.5.1 Screening step
[i) Specify processes to be included, as well as associated data quality and review requirements, which may exceed those of the OEF Guide.

ii) Specify for which processes specific data are required, for which the use of generic data is either permissible or required.]

B.5.2 Data quality requirements
[Provide guidance on data quality assessment scoring with respect to time, geographical and technological representativeness. Specify if there are any additional criteria for the assessment of data quality (compared to default criteria reported in the OEF Guide)]

B.5.3 Requirements regarding foreground specific data collection
[Specify:

i) Unit processes for which primary specific data are required (e.g. foreground processes) and how they are to be collected.

ii) Define the data collection requirements for the following aspects for each site:

- Data collection coverage
- Location of data collection (domestically, internationally…)
- Term of data collection (year, season, month…)
- When the location or term of data collection must be limited to a certain range, provide a justification and show that the collected data will serve as sufficient samples.]

Provide a list of substances/elementary flows in the foreground system that shall be collected. This list shall be added as an Annex VIII;
Include one or more examples for compiling foreground data, including specifications with respect to:

- Substance lists for activities/processes included;
- Units;
- Nomenclature for elementary flows (in line with ILCD Data Network entry level requirements).

**B.5.4 Requirements regarding background generic data and data gaps**

[Specify:

i) Unit processes for which secondary generic data may be used (e.g. background processes)

ii) Secondary generic data for each process.

iii) Semi-specific data for which default values are proposed but company can replace it by better ones if they have it. Semi-specific data are significant regarding each environmental indicator but not easily accessible for companies. Semi-specific data can be replaced by specific data when available. Semi-specific data should be based on a worst case scenario.

iv) Provide generic substance to replace the actual substance in the BOM based on relevant properties (e.g. physical, chemical, processing, etc)

All generic data and semi-specific data shall be specified in Annex IX.

**B.5.5 Data gaps**

[Specify potential data gaps and guidance for filling these gaps.]

**B.5.6 Use stage**

[Specify:

- The use-stage scenarios to be included in the study
- The time span of the goods/services included in the Product Portfolio to be considered for the use stage. The lifetime shall be determined according to verifiable technical performance and should not be related to other alike parameters (e.g. if a paint can technically last 10 years, the lifetime to consider is 10 years even if the sector knows that users paint their home every other 5 years). However, for transparency reasons, a reference to scenarios that are considered to be close to real use (e.g. inform that a repaint is expected by the average user pattern every 5 years) should be made.
- The use phase scenario shall be based on the best-known average situation. In case of different user patterns, more than one scenarios should be provided.
- In case the use stage is excluded from the OEF SR, state briefly the reasons for having done so.]
B.5.7 Logistics
[Specify transport, distribution and storage scenarios to be included in the study together with the underlying assumptions (e.g. distribution in central Europe, distribution in south Europe, distance to port etc).]

B.5.8 End-of-life stage
[Specify end-of-life scenario, if part of the system boundary. Specify underlying scenario assumptions e.g. waste sorting in central Europe or waste incineration in plants of central Europe etc. In case this stage is excluded from the OEFSR, state briefly the reasons for having done so.]

B.5.9 Requirements for multifunctional products and multiproduct processes allocation
[In case applicable, specify multi-functionality solutions and clearly justify with reference to the OEF multi/functionality solution hierarchy. Where subdivision is applied, specify which processes are to be sub-divided and how to subdivide the process by specifying the principles that such subdivision should adhere to. Where system expansion is used, specify which processes are added to the system. Where allocation by physical relationship is applied, specify the relevant underlying physical relationships to be considered, and establish the relevant allocation factors or rules. Where allocation by some other relationship is applied, specify this relationship and establish the relevant allocation factors or rules.]

B.6 Benchmark and classes of environmental performance
[In case the OEFSR will support comparisons, identify the environmental performance benchmark for the sector, based on the results of the screening on the representative organisation and the information gathered through the stakeholder consultation. Provide a description of the benchmark, by summarizing information reported in Annex III.]

The OEFSR shall include a table with benchmark values for each of the 15 EF impact categories separately. The minimum requirement is to produce benchmark values for the representative organisation (always indicated as C value in a scale from A to E). The TSs that also want to develop classes of performance should provide in the same table the values for the other 4 classes (A, B, D and E).

If performance classes are relevant and appropriate ideally there should be 5 classes of environmental performance (from A to E, with A being the best performing class and C being the performance of the representative organisation), by taking into account the estimated spread (including uncertainty) around the benchmark results, which might differ from impact category to impact category.

EU legislation and ISO type I labels are example of sources of information that may be used to define best and worst performance.

The performance classes, if defined, could be communicated either per impact category or using a single score approach. In this last case the following procedure shall be followed. As the disclaimer regarding normalisation and weighting states, the impact categories for which the impact assessment methods are currently not sufficiently reliable are human toxicity - cancer effect, human toxicity - non-cancer effect,
ecotoxicity for aquatic fresh water, water depletion, resource depletion, ionizing radiation and land use. These categories may be excluded from the benchmark meant for communication in case a single score is calculated. All other baseline OEF impact categories shall be included\(^\text{36}\). Therefore, two sets of information shall be provided in the draft OEFSR: the single score based on all 15 impact categories and the single score based on the reduced number of impact categories.

In case the TS decides to test alternative impact assessment methods, then the procedure below shall be followed. A single score calculated with alternative impact assessment methods shall be presented separately in the report. To calculate a single score, normalisation is needed. Therefore, the alternative impact assessment methods applied need to have a normalisation factor which is consistent with the current EF normalisation method (normalisation values can be calculated based on the JRC normalisation report\(^\text{37}\)).

For example, if the TS tests an alternative method for land use, than the following results shall be calculated: (1) the result based on all 15 impact categories with default impact assessment methods; (2) the result based on all 15 impact categories with the alternative land use impact assessment method, (3) the results based on the reduced number of impact categories (but now including land use) with baseline methods and (4) the result based on the reduced number of impact categories (including land use) with the alternative impact assessment method for land use.

In this case, the draft OEFSR shall include the single scores based on all 4 approaches.

Alternatively, state that the definition of the benchmark and classes of environmental performance proved not to be feasible, summarising the main points. Provide the detailed report regarding this issue in Annex III to the OEFSR.

**B.7 Interpretation**

[Provide instructions (if any) on how to use the OEF study results (e.g. confront results on the specific product with the results of the product category for interpretation purposes).

Describe uncertainties common to the sector. The range in which results could be seen as not being significantly different in comparisons or comparative assertions shall be identified. Provide an assessment on whether this OEFSR can be used for comparing performances of similar organisations.]

**B.8 Reporting, disclosure and communication**

[Specify and describe 2–4 best ways of communicating the results of an OEF-profile for this sector to different stakeholders. In all cases the principles laid down in the Commission Communication "Building the Single Market for Green Products - Facilitating better information on the environmental performance of products and organisations" shall apply. These are transparency, availability, reliability, completeness, comparability and clarity. For more guidance and examples, please

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\(^{36}\) This issue will be further discussed in the Technical Advisory Board related to the issue paper on performance classes

B.9 Verification

[Specify the requirements for verification to be used, depending on the intended application and communication vehicles used.]

B.10 Reference literature

[Provide references]

B.11 Supporting information for the OEFSR

Open stakeholder consultations

[A link to a web-page]

OEFSR Review Report

Additional requirements in standards not covered in OEFSR

[If an OEFSR is designed to be compliant with more than one standard, list requirements for any claim that intends to be compliant with these standards]

Cases of deviations from the default approach

[Where deviations from the default approach (as given in the OEF or in this OEFSR) is made, justification, results, interpretation and recommendation to the European Commission and the OEF-practitioner should be included.]

B.12 List of annexes

Annex B-I – Representative organisation

Report describing the representative organisation. Document all the steps taken to define the model.

The following elements shall be included:

- Specify if it is a real or a virtual organisation
- Description of the Product Portfolio (and sub-categories, where appropriate)
- Bill of materials (BOM) if appropriate
- System boundary diagram covering the entire life cycle. This shall include, at a minimum, site-level (direct) and upstream (indirect) activities associated with the Organisation’s Product Portfolio. The OEF boundaries shall by default include all supply-chain stages from raw material acquisition through processing, production, distribution, storage, use and EOL treatment of the Product Portfolio. All processes within the defined OEF boundaries shall be considered. Explicit

justification shall be provided if downstream (indirect) activities are excluded
  o Assumptions related to transportation scenario
  o Assumptions related to use scenario (if relevant)
  o Assumptions related to End of Life (if relevant)

Annex B-II – Supporting studies
Reports, without disclosing any confidential information\(^{39}\) describing the at least 3 OEF supporting studies that shall be carried out in compliance with the latest version of the OEF guide and with the included draft OEFSR.

They shall be based on existing, real organisations. The studies should always be done under the assumption that its result would be used for an OEFSR that could support comparisons or comparative assertions intended to be disclosed to the public.

The report on the supporting studies will be used to:
  o Test the draft OEFSR
  o Check the relevance of the identified most relevant environmental impacts
  o Check the relevance of the environmental performance benchmarks
  o Check the relevance of the classes of environmental performance related to the specific product category in scope of the OEFSR (if feasible)

Annex B-III – Benchmark and classes of environmental performance
Report on the feasibility of comparability between organisations in the sector. According to the conclusions of the report, either state that performance classes are not defined due to proven unfeasibility of comparisons, or complete the steps below.

Document all the steps taken to define the final benchmark(s), as a result of the final consultation.

Document all the steps taken to define the final classes of environmental performance (if any), as a result of the final consultation.

Annex B-IV – Upstream scenarios
Report describing upstream scenarios and processes as a result of the 1\(^{st}\) virtual consultation

Annex B-V – Downstream scenarios
Report describing downstream scenarios and processes as a result of the 1\(^{st}\) virtual consultation

\(^{39}\) Confidential information can be dealt with in a separate way in line with chapter 8.2.4 in the OEF guide Fourth element: Confidential Report: “The Confidential Report is an optional reporting element that shall contain all those data (including raw data) and information that are confidential or proprietary and cannot be made externally available. It shall be made available confidentially to the critical reviewers.”
**Annex B-VI – Normalisation factors**
List normalisation factors to be used in the OEFSR pilot phase

**Annex B-VII – Weighting factors**
List alternative weighting approaches tested as “additional” compared to the baseline approach (i.e. all impact categories shall receive the same weight in the baseline approach).

**Annex B-VIII – Foreground data**
Including a list of mandatory substances/elementary flows in the foreground system to be collected.

**Annex B-IX – Background data**
List of generic and semi-specific data that shall be used in the OEFSR.

**Annex B-X – EoL formulas**
List of alternative formulas tested as “additional” compared to the baseline approach specified in the OEF Guide.

Report of the sensitivity analysis carried out by the TS.

**Annex B-XI – Background information on methodological choices taken during the development of the OEFSR**
Provide detailed information about the justification for methodological decisions taken (e.g. selection of impact categories, additional environmental information, etc.)
Annex C – Supporting studies template

**IMPORTANT:** The supporting studies shall be based on a version of the draft OEFSR that includes all the information that a person not involved in its drafting would need to carry out the study. If the version of the draft OEFSR approved by the Steering Committee is missing such information (e.g., the list of secondary datasets to be used, the tables to recalculate the DQR values for the secondary datasets, or other information related to data needs), then the TS shall make available to the companies performing the supporting study an updated version of the OEFSR. It is important to send this version also to the Commission as this will be one of the documents used by the verifiers for their checks.

**General guidelines and instructions**

The information included in this template is what the Commission expects to find in a supporting study. However, the use of a different template (with different chapters) is allowed provided that the information listed in this template is available in the report.

- Any information written in the referenced OEFSR shall not be repeated in this report.
- Any additional instructions (e.g., impact assessments methods used, default background datasets and parameters used) shall be included in the OEFSR and not in the supporting study report.
- In principle no deviations from the draft OEFSR are allowed. In case of deviation, the details about the deviation shall be described in the related chapter (meaning, when there is a deviation on the scope, this shall be described in the scope chapter).
- The supporting study report (including confidential information) will be accessed only by the external verifiers (Ernst & Young), the OEFSR reviewers, and the EF Team in DG ENV and JRC IES.
- The supporting study report (including confidential information) shall remain confidential, unless differently agreed by the company performing the study. The company performing the study can grant access to other stakeholders upon request.
- Beside the confidential report (this template in its full version), a second report shall be produced that describes the main outcomes of the OEFSR supporting study without disclosing confidential information. For this, chapter 0, 7.2 and 9 can be removed from the report, while chapter 6 on the results may be replaced by a non-confidential summary. This second report will be made available to the Technical Secretariat, the Technical Advisory Board and the Steering Committee.
- The second report (without confidential information) or a condensed version thereof can be used in the communication phase. If the communication phase concerns tests in real market conditions, then the characterized results shall be available to the public at least for the impact categories identified as “most relevant” in the OEFSR, where applicable.
1 Summary
The summary includes the following elements:
- The goal and scope of the supporting study
- Relevant statements about data quality, assumptions, value judgments and limitations
- The main results from the impact assessment
- Recommendations made and conclusions drawn

To the extent possible the Summary should be written with a non-technical audience in mind and should not be longer than 3-4 pages.

2 General
The information below should ideally be placed on the front-page of the study:
- Name of the organization
- In case applicable, sub-set of the organisation's activities on which the study was carried out
- NACE code based on the latest NACE list version available and product portfolio covered
- Company presentation (name, geographic location)
- Date of publication of supporting study (write out the date e.g. 25 June 2015 to avoid confusion of the date format)
- Geographic validity of the supporting study (countries where the organisation or its sub-set are active)
- List the reference OEFSR the supporting study is in conformance with (incl. version number)
- An indication whether this report underwent a critical review process (critical review of the supporting study is not a mandatory requirement)

[The following statements shall be included:
"The current document endeavours to be compliant with the requirements of the ‘Organisation Environmental Footprint (OEF) Guide’ (Annex III to Recommendation (2013/179/EU), the “Guidance for the implementation of the EU OEF during the EF Pilot Phase” (refer to the version valid at the time of the study) and the OEFSR ... add title, version and publication date."]

[Indicate the level of confidentiality of this report. The report will be public if it is used for communication purposes. The paragraph below can be used/adapted.
"This supporting study report (in its full version) is confidential and will be accessed only by the external verifiers, the OEFSR reviewers, and the EF Team in DG ENV and JRC IES"]
3 Goal of the study

The following text shall be included:
"The supporting study is part of the PEF/OEF pilot phase and includes the following goals:
(i) To validate the rules of the draft OEFSR
(ii) To validate the outcomes of the screening study (such as the selection of relevant impact categories, life cycle stages, processes and elementary flows)
(iii) To establish whether it is feasible to compare the performance of two organisations in the same sector, and based on what indicators the comparison could be done
(iv) To perform supplementary analysis listed in the draft OEFSR
(v) To provide results that can be used as the basis for communicating the OEF profile"

Include any additional intended application.

4 Scope of the study

4.1 Reporting unit and Product Portfolio

Provide the reporting unit (unit of analysis) and the Product Portfolio, as described in the OEFSR

4.2 System boundaries

This section shall include as a minimum:
- Define the organisational boundary and the OEF boundary.
- List processes/activities falling under the direct and indirect activities. Provide a list of processes/activities falling within the organizational boundaries that are needed/not needed to provide the product portfolio.
- Provide a system diagram clearly indicating the system boundaries, the processes that are included and those excluded, highlight activities falling under the different situations in the Data Need Matrix, and highlight where primary activity data / primary life cycle inventory data is used. In case a supporting study is not implementing Annex E, then the system diagram shall clearly indicate which are the processes in the company foreground system (where they have operational control) and which are those in the company background system

4.3 Supplementary analysis

Describe any supplementary analysis made, e.g.:
- Scenario sensitivity and uncertainty analysis

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The OEF Data Needs Matrix will become available shortly. As soon as that is available, at least one of the supporting studies will have to use this approach. The Data Needs Matrix will be based on the PEF Data Needs Matrix but consider the specificities at organisation level. The PEF Data needs matrix is available in the “Guidance for the implementation of the EU OEF during the EF Pilot Phase” (version no. 5.1.), Annex E
• Any other supplementary analysis listed in the draft OEFSR that needs further testing
• The use of impact assessment methods, end of life formulas or datasets other than those recommended in the OEFSR]

5 Life Cycle Inventory analysis

5.1 Data collection and quality assessment (CONFIDENTIAL IF RELEVANT)

[This section shall include as a minimum:
• Description and documentation of all primary data collected\(^{41}\)
  o per life cycle stage, e.g., raw material acquisition, production, distribution and storage, use stage, end of life
  o list of activity data used
  o Reference to the representative product used (either based on a PEFCR screening or created for the purposes of the analysis) used to model the product portfolio or sub-categories within the product portfolio. In case the model is created during the OEF study, the parameters of the model shall be described.
  o List of primary datasets used
  o Reference to the secondary datasets used (if not feasible to list the secondary datasets used, refer to the database(s) including version used, linking them to specific elements in the product portfolio)
  o modelling parameters derived from primary data or additional to those described in the OEFSR (e.g. transportation distance, re-use rate for packaging, etc.)
• Primary data collection/estimation procedures, not specified in the draft OEFSR. Provide justification if any procedure deviates from requirements in the OEFSR
• Sources of published literature
• Validation of data, including documentation
• Report the data quality assessment scoring per process in accordance with the OEFSR requirements\(^{42}\)]

5.2 Data gaps

[Specify data gaps and the way in which these gaps were filled. Data gaps could refer to absolute gaps (e.g. a dataset or a relevant flow is missing) or it could refer to qualitative data gaps (e.g. a dataset is available but its DQR is higher than the minimum]

\(^{41}\) A description on system level is required, i.e. the whole life cycle be described focussing on the most relevant parts thereof, resulting in e.g. 1-2 page summary. This is what the ILCD format foresees in the field “Technology description including background system”. Generally, it is required a documentation that can directly be used to fill in the respective fields in the ILCD format for the resulting LCI results data set.

\(^{42}\) At least one supporting study per pilot TS shall apply the data collection and data quality assessment procedure described in the issue paper “Data requirements in Product Environmental Footprint Category Rules (PEFCR)” Version 1.0 12 May 2015. The supporting studies not applying this approach shall follow the baseline approach described in the PEF method, Table 4.
5.3 Supplementary analysis

[This section shall describe more in detail the supplementary analysis made.

- Calculation procedure, assumptions, data sources used, etc.]

6 Impact assessment results (CONFIDENTIAL IF RELEVANT)

6.1 OEF results – Impact Assessment

[This section shall include as a minimum:

- List of the most relevant life cycle stages, processes and elementary flows based on the approach explained in Annex D to this Guidance (using normalization and weighting) and/ or using any additional approach defined in the OEFSR.
- Characterised results per life cycle stage and impact category (all 15 OEF impact categories shall be calculated in the supporting study)
- Normalised and weighted results
- If included in OEFSR, the required additional environmental information
- Limitation of the EF results relative to the defined goal and scope of the OEF study

In case alternative impact assessment methods and/or normalisation factors and/or weighting systems are used, the results shall be calculated separately for the baseline OEF approach and for each of the alternative options included.]

6.2 Supplementary analysis

[This section shall include as a minimum:

- Results or conclusions of any supplementary analysis made]

7 Interpretation

7.1 OEF results - Interpretation

[This section shall include as a minimum:

- Comparison of the supporting study results against those of the screening study (relevant impact categories, life cycle stages, processes and elementary flows). Differences shall be described and explained, including a reflection on their relevance in the case of the specific sector.
- Any feedback on the draft OEFSR used, including suggestions for improvements, changes, additions
- Assessment of the degree of accuracy (technology, time, geography) for the newly created datasets;
- Average DQR for the supporting study (expressed as a mathematical average of the DQR of all datasets used in the study)
- Uncertainty (at least a qualitative description)].
7.2 Comparison to the benchmark

[To be completed if applicable. This section shall quantitatively report how the organisation scores against the benchmark defined at OEFSR level (in case no benchmark is explicitly stated in the OEFSR, the characterised results of the representative organisation are to be taken as basis for the benchmark) and following the same calculation rules. In any case, for the supporting studies, this comparison shall be done for each of the 15 impact categories\(^{43}\). Scores against the benchmark may be placed in a confidential annex.]

7.3 Performance class

[This section should only be filled in case the draft OEFSR includes a proposal for performance classes. If that is the case, here it should be reported how the specific organisation would score.]

8 Annex I

[The Annex serves to document supporting elements to the main report which are of a more technical nature. It could include:

- Bibliographic references;
- Additional results that have been shown to be not relevant;
- Life Cycle Inventory analysis (optional if considered sensitive and communicated separately in the Confidential annex, see below)]

9 Annex II: Confidential

[The Confidential annex is an optional chapter that shall contain all those data (including raw data) and information that are confidential or proprietary and cannot be made externally available.]

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\(^{43}\) After the supporting studies, for communication purposes, the benchmark per impact category may be defined solely for the selected relevant impact categories.
Annex D - Screening and hotspot analysis: procedure to identify the hotspots and the most relevant contributions (in terms of, impact categories, life cycle stages, processes and flows)\(^{44}\)

D.1 Screening and Hotspot Analysis

When performing a PEF/OEF study in the context of the Environmental Footprint (EF) pilot phase a screening analysis is required. The screening is a cornerstone in the PEFCR/OEFSR development process. It leads to the identification of hot spots and the identification of the most relevant impact categories, life cycle stages, processes and elementary flows.

There is an important operational difference between hotspots and most relevant impact categories and life cycle stages on one hand and most relevant processes, and elementary flows on the other. In particular, both the hotspots and most relevant impact categories/life cycle stages are relevant in the context of the "communication" part of PEF/OEF. The hotspots might serve the purpose of "warning" an organisation about the area where they should focus their attention in order to improve the environmental performance of a product (PEF) or an organisation (OEF). The most relevant impact categories shall be the object of the communication phase, whilst the most relevant life cycle stages could be used for communication purposes where appropriate.

The identification of the most relevant processes and elementary flows is also important for the engineers in identifying actions for improving the overall footprint e.g. by-pass or change a process, further optimise a process, apply antipollution technology etc. This is in particular relevant for internal studies. However, and this is specific to the PEFCR/OEFSR development process, the identification of the most relevant processes and elementary flows has a key role in the decision process to identify data-related requirements (see the issue paper on data needs for further information on this issue).

\(^{44}\) The essential contribution from Keith James (WRAP, UK TAB Member) is acknowledged for this Annex.
D.2 Communication-related requirements

In the context of the Environmental Footprint pilot phase the pilots are requested to carry out some communication activities. What will be communicated will depend from the specific requirements identified in each PEFCR. However, there is already at least one horizontal requirement valid for all pilots: they shall communicate about the most relevant environmental impacts identified in the PEFCR. It is subject to the Technical Secretariat to identify whether additional requirements are required and if so these shall be drafted within the PEFCR. Otherwise, all the other information elements remain at the discretion of each company.

D.2.1 Procedure to identify the most relevant impact categories.
The identification of the most relevant impact categories shall be based on the normalised and weighted results of the screening study. However, considering some current limitations related to normalisation factors, the pilots have the option of identifying the most relevant impact categories according to the procedure below.

Starting from the normalised and weighted screening results, each Technical Secretariat will be asked to select the impact categories that they consider more relevant in terms of "communication purposes". The TS shall adequately justify in the screening report the technical reasons why they propose to deviate from the "default" list based on normalised and weighted results. This decision will be subject of a stakeholder consultation and the Technical Advisory Board will be asked to provide an opinion about the selection in view of the Steering Committee approval vote.

D.2.2 Procedure to identify the most relevant life cycle stages.
Whilst the identification of the most relevant life cycle stages is not considered essential in terms of identifying data needs, it could be relevant in terms of communication and supply chain management. The most relevant life cycle stages shall

45 These limitations are both related to the way normalization factors are calculated and how they are implemented in the most used LCA databases and software.
be identified in the screening. All life cycle stages which together contribute over 80% (before normalisation and weighting) to any of the baseline impact. This should start from the largest to the smallest contributions. Any TS can add more life cycle stages to the list of the most relevant ones but they cannot delete any of the most relevant life cycle stages as identified in the screening study using the baseline PEF/OEF methods.

In order to guarantee a minimum level of harmonisation among different PEFCRs/OEFSRs, the default life cycle stages should be the following:

- Raw material acquisition and pre-processing (including production of parts and unspecific components);
- Production of the main product;\(^46\)
- Product distribution and storage
- Use stage scenario (if in scope);
- End-of-life (including product / part reuse, recovery / recycling; if in scope).

**D.2.3 Procedure to identify the hotspots.**

A hotspot can be identified at different levels of granularity: impact category, life cycle stage, process or elementary flow.

In the context of PEF/OEF pilot phase we can define a hotspot as either:

- **OPTION A**: (1) life cycle stages, (2) processes and (3) elementary flows cumulatively contributing at least 50% to any impact category before normalisation and weighting (from the most contributing in descending order).
- **OPTION B**: At least the two most relevant life cycle stages, processes and at least two elementary flows (minimum 6). Additional hotspots may be identified by the TS.

**D.3 Data-related requirements**

The identification of the most relevant processes is the key step in order to identify the typology of data to be provided when implementing a PEFCR. Whilst traditionally LCA practitioners are expected to provide primary/site-specific data for processes taking place in the foreground and secondary data for processes taking place in the background, in PEF the implementation of the materiality principle leads to a different approach. The processes most contributing to the final results (in terms of environmental impacts or savings) are those for which the best quality of data should be provided. For the processes less relevant it is possible to use data of lower quality.

**D.3.1 Procedure to identify the most relevant processes.**

Each impact category shall be further investigated to identify the most relevant processes. The identification of the most relevant processes shall be done at the whole

\(^{46}\) If it is not possible to differentiate between the production of the main product and ancillary materials and other life cycle stages, e.g. raw material acquisition and transport, then these life cycle stages can be merged. Adequate justifications shall be provided in the screening report and be highlighted in the consultation phase. If an “aggregated” life cycle stage/process is most relevant it implies that all the processes included will be classified as most relevant.
life cycle level. Similar/identical processes taking place in different life cycle stages (e.g. transportation) shall be accounted separately.

In the context of the EF pilot phase we can define processes as most relevant where they collectively contribute at least 80% to any impact category before normalisation and weighting. Any TS can add more processes to the list of the most relevant ones (based on the importance of such processes to their sector) but they cannot delete any of the most relevant processes as identified in the screening study using the baseline PEF method.

In some instances, vertically aggregated datasets may be identified as representing relevant processes. It may not be obvious which process within an aggregated dataset is responsible for contributing to an impact category. The metadata accompanying the data should be reviewed by the TS and used to identify relevant processes. If this is not possible, the TS may decide whether to seek further disaggregated data or to treat the aggregated dataset as a process for the purposes of identifying relevance.

Once the most relevant processes have been identified, for communication and/or supply chain analysis purposes, it could make sense to group them by life cycle stage or other forms of grouping. In particular, it is suggested – for each life cycle stage - to group processes as partially aggregated at level 1 (see Annex E for definitions and further explanations).

**D.3.2 Procedure to identify the most relevant elementary flows**

As far as the most relevant elementary flows is concerned, the TS shall identify those to be reported for each impact category, as the ones contributing cumulatively more than 80% to the impact category. The TS may decide whether this is calculated at the level of overall life cycle and / or single (most relevant) process level. All elementary flow contributing more than 5% to the impact category shall be considered as relevant.

Once the most relevant elementary flows have been identified they shall be linked to the most relevant processes emitting them (see example below). In case a TS decides not to perform this step, the justification shall be clearly explained both in the screening and PEFCR as “limitation” of the study.

**D.3.2.1 Dealing with negative numbers**

When identifying the percentage contribution from any process or flow it is important that absolute values are used (i.e. the minus sign is ignored) in calculating percentage contributions. This allows the relevance of any credits to be identified. In case of flows with a negative impact score (credit), you should consider those flows to have a plus

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47 In this last case, if an aggregated dataset is relevant, everything in it is automatically relevant.

48 It is acknowledged that the process of linking the most relevant elementary flows to the processes emitting them could be time-consuming depending on the software used. In case a TS cannot perform such analysis at the screening level, this shall be identified as a limitation of the study and the TS shall commit to perform such task if, within the validity of the pilot phase, improved software become available.
sign (a positive score). The total positive score for those impact category then needs to be recalculated to 100% and then the procedure follows as generally.

D.3.2.2 Specific instructions about aggregating elementary flows

The toxicity related impact categories (“Human toxicity, cancer effects”, “Human toxicity, non-cancer effects”, and “Freshwater ecotoxicity”) contain long lists of characterization factors specified on the elementary flow category, level 3 (also known as sub-compartment – for example urban air, freshwater, agricultural soil). The impact category “Particulate matter” also contains characterization factors at the level 3 category. It is recommended to aggregate the elementary flows on the level 2 category (i.e. emissions to air, water, soil) in the contribution analysis. This is to make the analysis more manageable and because the level 3 category does not give additional information when analyzing on the process level (the processes already contain information on the location type of the emissions). It is important to model foreground data on the level 3 category for particulates and toxic substance flows, because the characterization factors can deviate considerably.

Metal resource flows are not specified per origin of ore type in the source files of the ILCD recommended methods. However, in several background databases, metal resource flows are differentiated (for example, Silver, Ag 4.6E-5%, Au 1.3E-4%, in ore, Silver, Ag 4.2E-3%, Au 1.1E-4%, in ore, Silver, Ag 2.1E-4%, Au 2.1E-4%, in ore, etc.). Therefore, the specified flows were added to the ILCD method in LCA software packages with the same characterization factors as for the unspecified metals. When doing a contribution analysis of the metal resource flows, it is therefore recommended to aggregate the flows per metal (silver, copper, nickel, etc.).

There are five different fossil resource flows specified in the source files of the ILCD recommended methods (brown coal; 11.9 MJ/kg, crude oil; 42.3 MJ/kg, hard coal; 26.3 MJ/kg, natural gas; 44.1 MJ/kg, peat; 8.4 MJ/kg). However, in several background databases, fossil resource flows are specified with different calorific values (for example, Gas, natural, 46.8 MJ per kg, Gas, natural, 36.6 MJ per m3, Gas, natural, 35 MJ per m3, Gas, natural, 30.3 MJ per kg, etc.). Therefore, the specified flows were added to the ILCD method in LCA software packages with characterization factors related to the factors in the original source, taking the different calorific value into account. When doing a contribution analysis of the fossil resource flows, it is therefore recommended to aggregate the flows based on the 5 original flows (brown coal, crude oil, hard coal, natural gas and peat).

D.3.2.3 Link to the definition of the Representative Product

The right level to define most relevant life cycle stages, processes and elementary flows should be seen in close relation to the definition of the Representative Product (RP). It is of primary importance that relevance thresholds are defined for every technology included in the Representative Product, even if the current market share of the technology is low. When choosing the level, the TS need to be careful not to leave something out (cut-off) and should investigate relevance at the lowest possible level, so
the PEFCR can capture what is most relevant and what is not also in relation to technologies that may have a niche market share.

D.4 Conclusions
In table D-1 the requirements to define most relevant contributions are summarized.

Table D-1 – Summary of requirements to define most relevant contributions and hotspots

<table>
<thead>
<tr>
<th>Item</th>
<th>At what level does relevance need to be identified?</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most relevant impact categories</td>
<td>In the final results, starting from normalized and weighted results but deviations possible if justified</td>
<td>No threshold. Decision left to TS but subject to stakeholder consultation and TAB opinion</td>
</tr>
<tr>
<td>Most relevant life cycle stages</td>
<td>For each impact category, before normalization and weighting. Not relevant for data needs identification</td>
<td>All life cycle stages contributing cumulatively more than 80% to any impact category</td>
</tr>
<tr>
<td>Hotspots</td>
<td>For each impact category, before normalization and weighting</td>
<td>Either (i) life cycle stages, processes, and elementary flows cumulatively contributing at least 50% to any impact category, or (ii) at least the two most relevant life cycle stages, processes and at least two elementary flows (minimum 6). Additional hotspots may be identified by the TS</td>
</tr>
<tr>
<td>Most relevant processes</td>
<td>For each impact category, before normalization and weighting. Essential for data needs identification</td>
<td>All processes contributing cumulatively more than 80% to any impact category</td>
</tr>
<tr>
<td>Most relevant elementary flows</td>
<td>For each impact category, before normalization and weighting. Essential for data needs identification</td>
<td>All elementary flows contributing cumulatively more than 80% to any impact category and in any case all those contributing more than 5%</td>
</tr>
</tbody>
</table>
D.5 Example
What follows is a fictitious example, not based on any specific PEF study results.

D.5.1 Most relevant Impact Categories
Table D-2: Contribution of different impact categories based on normalised and weighted results

<table>
<thead>
<tr>
<th>Impact category</th>
<th>Unit</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change</td>
<td>kg CO₂ eq</td>
<td>21.5</td>
</tr>
<tr>
<td>Ozone depletion</td>
<td>kg CFC-11 eq</td>
<td>3.0</td>
</tr>
<tr>
<td>Human toxicity - cancer effects</td>
<td>CTUₜₕ</td>
<td>8.3</td>
</tr>
<tr>
<td>Human toxicity - non-cancer effects</td>
<td>CTUₜₕ</td>
<td>14.9</td>
</tr>
<tr>
<td>Particulate matter</td>
<td>kg PM2.5 eq</td>
<td>0.1</td>
</tr>
<tr>
<td>Ionizing radiation HH</td>
<td>K bq U235 eq</td>
<td>0.5</td>
</tr>
<tr>
<td>Photochemical ozone formation</td>
<td>kg NMVOC eq</td>
<td>2.4</td>
</tr>
<tr>
<td>Acidification</td>
<td>mol H+ eq</td>
<td>1.5</td>
</tr>
<tr>
<td>Eutrophication - terrestrial</td>
<td>mol N eq</td>
<td>1.0</td>
</tr>
<tr>
<td>Eutrophication - freshwater</td>
<td>kg P eq</td>
<td>1.0</td>
</tr>
<tr>
<td>Eutrophication - marine</td>
<td>kg N eq</td>
<td>0.1</td>
</tr>
<tr>
<td>Ecotoxicity - freshwater</td>
<td>CTUₑ</td>
<td>0.1</td>
</tr>
<tr>
<td>Land use</td>
<td>kg C deficit</td>
<td>14.3</td>
</tr>
<tr>
<td>Resource depletion - water</td>
<td>m³ water eq</td>
<td>18.6</td>
</tr>
<tr>
<td>Resource depletion – mineral, fossil</td>
<td>kg Sb eq</td>
<td>12.7</td>
</tr>
</tbody>
</table>

Based on the normalised and weighted results the TS can decide that the following impact categories are relevant for "communication purposes": climate change, water depletion and land use. Where there is deviation from the most significant contributors to the normalised results, justification shall be provided.

Once the relevant impact categories for communication purposes have been selected, the TS shall start identifying the most relevant life cycle stage, processes and flows per each impact category (all baseline EF impact categories, not only those relevant for communication purposes).

D.5.2 Most Relevant Life Cycle Stages⁴⁹
Table D-3: Contribution of different life cycle stages to the climate change impact category (based on the characterised inventory results before normalisation and weighting)

⁴⁹ Whilst the selection of the most relevant life cycle stages is not seen essential for data needs identification, it is requested by the Implementation Guidelines and could be relevant for communication purposes and supply-chain management.
The three life cycle stages in yellow will be the ones identified as "most relevant" for climate change as they are contributing to more than 80%. Ranking shall start from the highest contributors. The TS could decide to add more or not. This procedure shall be repeated for all the baseline EF impact categories.

### D.5.3 Most Relevant Processes

Table D-4: Contribution of different processes to the climate change impact category (based on the characterised inventory results before normalisation and weighting)

<table>
<thead>
<tr>
<th>Unit process</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process A</td>
<td>8.9</td>
</tr>
<tr>
<td>Process B</td>
<td>61.4</td>
</tr>
<tr>
<td>Process C</td>
<td>23.4</td>
</tr>
<tr>
<td>Process D</td>
<td>2.8</td>
</tr>
<tr>
<td>Process E</td>
<td>1.5</td>
</tr>
<tr>
<td>Process F</td>
<td>0.9</td>
</tr>
<tr>
<td>Other processes</td>
<td>0.9</td>
</tr>
</tbody>
</table>

According to the proposed procedure the processes in green shall be selected as “most relevant”. However, the TS could consider deciding that process E, even if only contributing to 1.4% (and therefore not contributing more than Process A which is not relevant) is considered as most relevant to their sector, maybe because is the one where they have operational control. They can therefore decide to add that process to the list of the most relevant that therefore would become: Process B, C, and E.

This procedure shall be repeated for all the baseline EF impact categories (i.e., not only for those selected as relevant for communication purposes).

### D.5.4 Most Relevant Elementary Flows

Considering that the selection of the most relevant elementary flows can be done at overall life cycle level (option 1) and/or per relevant process (option 2), there are two possible outcomes. Starting from the inventory results provided in Table D-5, the list of most relevant flows are highlighted in blue in Table D-6 (at overall life cycle) and Table D-7 (at process level).

Table D-5: Inventory results (climate change, results expressed in gCO$_{eq}$).
### Table D-6: Most relevant inventory flows contributing to climate change (based on the inventory results before normalisation and weighting) - overall life cycle (option 1).

<table>
<thead>
<tr>
<th>Inventory flow</th>
<th>Substance 1</th>
<th>Substance 2</th>
<th>Substance 3</th>
<th>Substance 4</th>
<th>Substance 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process A</td>
<td>249</td>
<td>85</td>
<td>6</td>
<td>45</td>
<td>5</td>
<td>390</td>
</tr>
<tr>
<td>Process B</td>
<td>1100</td>
<td>600</td>
<td>500</td>
<td>450</td>
<td>50</td>
<td>2700</td>
</tr>
<tr>
<td>Process C</td>
<td>300</td>
<td>250</td>
<td>20</td>
<td>30</td>
<td>430</td>
<td>1030</td>
</tr>
<tr>
<td>Process D</td>
<td>60</td>
<td>30</td>
<td>20</td>
<td>10</td>
<td>5</td>
<td>125</td>
</tr>
<tr>
<td>Process E</td>
<td>64</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>68</td>
</tr>
<tr>
<td>Process F</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>41</td>
</tr>
<tr>
<td>Other processes</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>1803</td>
<td>986</td>
<td>563</td>
<td>546</td>
<td>497</td>
<td>4395</td>
</tr>
</tbody>
</table>

### Table D-7: Most relevant inventory flows contributing to climate change (based on the inventory results before normalisation and weighting) – process level (option 2).

<table>
<thead>
<tr>
<th>Inventory flow</th>
<th>Substance 1</th>
<th>Substance 2</th>
<th>Substance 3</th>
<th>Substance 4</th>
<th>Substance 5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process A</td>
<td>5,7%</td>
<td>1,9%</td>
<td>0,1%</td>
<td>1,0%</td>
<td>0,1%</td>
<td>8,9%</td>
</tr>
<tr>
<td>Process B</td>
<td>25,0%</td>
<td>13,7%</td>
<td>11,4%</td>
<td>10,2%</td>
<td>1,1%</td>
<td>61,4%</td>
</tr>
<tr>
<td>Process C</td>
<td>6,8%</td>
<td>5,7%</td>
<td>0,5%</td>
<td>0,7%</td>
<td>9,8%</td>
<td>23,4%</td>
</tr>
<tr>
<td>Process D</td>
<td>1,4%</td>
<td>0,7%</td>
<td>0,5%</td>
<td>0,2%</td>
<td>0,1%</td>
<td>2,8%</td>
</tr>
<tr>
<td>Process E</td>
<td>1,5%</td>
<td>0,0%</td>
<td>0,0%</td>
<td>0,0%</td>
<td>0,0%</td>
<td>1,5%</td>
</tr>
<tr>
<td>Process F</td>
<td>0,3%</td>
<td>0,2%</td>
<td>0,2%</td>
<td>0,1%</td>
<td>0,1%</td>
<td>0,9%</td>
</tr>
<tr>
<td>Other processes</td>
<td>0,3%</td>
<td>0,2%</td>
<td>0,2%</td>
<td>0,1%</td>
<td>0,1%</td>
<td>0,9%</td>
</tr>
<tr>
<td>Total</td>
<td>41,0%</td>
<td>22,4%</td>
<td>12,8%</td>
<td>12,4%</td>
<td>11,3%</td>
<td>100%</td>
</tr>
</tbody>
</table>

### D.5.5 Hotspots

In Tables D-8 and D-9 the identified hotspots based on the two different approaches available.
Table D-8: Hotspots based on 50% cumulative contribution (OPTION A).

<table>
<thead>
<tr>
<th>Life cycle stages</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material acquisition and pre-processing</td>
<td></td>
</tr>
<tr>
<td>Production of the main product</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process B</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elementary flows</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1: Substance 1 and 2</td>
<td></td>
</tr>
<tr>
<td>Option 2:</td>
<td></td>
</tr>
<tr>
<td>• Substance 1 and 2 in processes B</td>
<td></td>
</tr>
<tr>
<td>• Substance 1 and 5 in process C</td>
<td></td>
</tr>
<tr>
<td>• Substance 1 in process E</td>
<td></td>
</tr>
</tbody>
</table>

Table D-9: Hotspots based on top two representatives (OPTION B).

<table>
<thead>
<tr>
<th>Life cycle stages</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material acquisition and pre-processing</td>
<td></td>
</tr>
<tr>
<td>Production of the main product</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process B</td>
<td></td>
</tr>
<tr>
<td>Process C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elementary flows</th>
<th>Hotspots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1: Substance 1 and 2 in process B</td>
<td></td>
</tr>
<tr>
<td>Option 2: Substance 1 in process E and substance 5 in process C</td>
<td></td>
</tr>
</tbody>
</table>

Choosing the hotspot based on option B-2 might lead to anomalies (like in this fictitious example) where an elementary flow is identified as hotspot even if its absolute value is not prominent.
Annex E – Data requirements in Organisation Environmental Footprint Category Rules (OEFSRs)\textsuperscript{51}

\textbf{E.1. Background}

When calculating an Environmental Footprint, there will be occasions when a choice has to be made between using primary and secondary data. Current generic life cycle inventories are mostly based on average datasets which hide the differences of environmental performances between processes that may exist in reality looking at different supply chains.

A mandatory requirement to use only fixed average secondary datasets for all background processes would not stimulate the development of specific data for OEF calculation and would limit the possibility of meaningful comparison and benchmarking. On the other hand, there is a risk of introducing too much inconsistency by allowing choosing and/or manipulating datasets if there is unchecked freedom to “pick and choose” from available datasets or to introduce significant changes to existing datasets. These inconsistencies also would limit the possibility of meaningful comparison and benchmarking.

There may also be issues with the quality of data available. The purpose of this Annex is to provide instructions to Technical Secretariats and users concerning the choice of datasets to be used when using an OEFSR.

One of the main features of the EF methods is the attempt to operationalise the "materiality" approach, i.e. focusing where it really matters. In the EF context the materiality approach is developed around two main areas:

- \textbf{Impact categories, life cycle stages, processes and elementary flows}: the OEFSRs shall identify the most relevant ones. These should be the contributions where companies, stakeholders, consumers, and policy makers should focus more;
- \textbf{Data requirements}: as the most relevant contributions are those driving the environmental profile of a product, these shall be assessed by using data with higher quality compared to the less relevant contributions, independently from where these processes happen in the supply chain.

\textbf{E.2. Definitions}

Before analysing the different data needs it is therefore appropriate to clarify relevant definitions valid in the context of the EF pilot phase and, in particular, to better understand the content of this Annex.

\textbf{Aggregated dataset}: This term is defined as a life cycle inventory of multiple unit processes (e.g. material or energy production) or life cycle stages (cradle-to-gate), but for which the inputs and outputs are provided only at the aggregated level. Aggregated datasets are also called “cumulative inventory” or “System processes” (Ecoinvent) datasets. The aggregated dataset can have been aggregated horizontally and/or

\textsuperscript{51} This annex was written based on the original work for data requirements in PEFCRs. The essential contribution from An De Schryver (EC, DG ENV), Keith James (UK DEFRA), Luca Zampori (JRC IES) and the members of the EF Helpdesk is acknowledged for this Annex.
vertical. Depending on the specific situation and modelling choices a "unit process" dataset can also be aggregated. See Figure E-1.

![Figure E-1: Definition of a unit process dataset and an aggregated process dataset (Source: Broadbent et al 2011)](image)

**Activity data:** This term refers to information which is associated with input or output processes while modelling Life Cycle Inventories. In the OEF Guide, it is also called “non-elementary flows”. Activity data is multiplied by an LCI to derive the environmental footprint associated with a process or an operation (See Figure E-2). Examples of activity data include quantity of kilowatt-hours of electricity used, quantity of fuel used, output of a process (e.g. waste, by-products), hours equipment is operated, distance travelled, floor area of a building, etc. In the context of EF the amounts of ingredients from a bill of materials (BOM) shall always be considered as activity data.

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52 Based on GHG protocol scope 3 definition
**Background system:** This term refers to those processes in the product life cycle for which usually no direct access to specific information is possible. The background process is outside the direct influence of the organisation or service operator of the analysed system/product portfolio. Typically these would be in the OEF Boundary (indirect).

**Data Quality Rating (DQR):** Semi-quantitative assessment of the quality criteria of a dataset based on six characteristics, five relating to the data (Technological representativeness, Geographical representativeness, Time-related representativeness,
Completeness, Parameter uncertainty) and one to the method (Methodological Appropriateness and Consistency). The data quality shall be considered both as the quality of the dataset as documented and the dataset’s appropriateness and accuracy for the process/product it is intended to represent in the specific case.

Direct elementary flows: All emissions and resource use (also named elementary flows) from direct activities. Examples are emissions from a chemical process, fugitive emissions or from a boiler directly on-site. This can also be defined as scope 1 emissions according to the GHG protocol, except for the emissions resulting from transportation of materials, products, waste, and employees. See Figures E-2 and E-3.

Disaggregation: The process that breaks down an aggregated dataset into smaller unit process datasets (horizontal or vertical). The disaggregation can help making data more specific. This is particularly relevant during the PEF/OEF screening in order to have a better defined hotspots analysis. The process of disaggregation should never compromise or threat to compromise the quality and consistency of the original aggregated dataset.

Elementary flow: Material or energy entering the system being studied that has been drawn from the environment without previous human transformation, or material or energy leaving the system being studied that is released into the environment without subsequent human transformation.

Foreground system: This term refers to those processes in the life cycle of the products covered by the product portfolio for which direct access to specific information is available. For example, the company’s site and other processes operated by the company or its contractors (e.g. goods transport, head-office services, etc.) belong to the foreground processes. Typically these would be within the organisational boundary (direct).

Life Cycle Inventory (LCI) dataset: A document or file with life cycle information of a specified product or other reference (e.g., site, process), covering descriptive metadata and quantitative life cycle inventory. A LCI could be a unit process dataset, unit process dataset – partially aggregated or an aggregated dataset.

Organisational boundary (direct): it encompasses all facilities and associated processes that are fully or partially owned and/or operated by the Organisation and that directly contribute to the provision of the product portfolio.

Organisation Environmental Footprint (OEF) boundary (indirect): defined in terms of indirect activities and associated impacts. Indirect activities and impacts are those that occur upstream or downstream along the supply chains linked to organisational activities, but that fall outside of the defined organisational boundaries.

Partially disaggregated dataset: A dataset which is modelled with elementary flows and activity data combined with other aggregated datasets. We refer to a partially

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53 Data quality of a dataset necessarily refers to the dataset as it is documented, i.e. how well does the dataset inventory represent the declared process/product. When using such a dataset for a specific purpose – here to serve as basis for a semi-specific dataset of a process/product, which will often more or less differ – in addition the limitations of representativeness for the to-be-represented process/product has to be considered. E.g. an excellent quality carbon steel sheet dataset may still have limited data quality if used to represent a stainless steel sheet as semi-specific dataset.

54 European Commission – Joint Research Centre – Institute for Environment and Sustainability 2009
disaggregated dataset at level 1 in case only the direct elementary flows and activity
data are specified, while all sub-processes are in their aggregated form (see Figure E-2). A partially disaggregated dataset at level 2 has disaggregated sub-processes at level one (see Figure E-3).

**Primary data**\(^{55}\): This term refers to data from specific processes within the supply-chain of the organisation applying the OEFSR. Such data may take the form of activity data, or direct elementary flows (life cycle inventory). Primary data are site-specific or organisation-specific (if multiple sites are employed for providing the product portfolio). Primary data may be obtained through meter readings, purchase records, utility bills, engineering models, direct monitoring, mass balance, stoichiometry, or other methods for obtaining data from specific processes in the value chain of the organisation applying the OEFSR. Primary data are also called "specific data".

**Secondary data**\(^{56}\): refers to data not from specific process within the supply-chain of the organisation applying the OEFSR. This refers to data that is not directly collected, measured, or estimated, but sourced from a third-party life-cycle-inventory database or other sources. Secondary data includes industry average data (e.g., from published databases, government statistics, literature studies, and industry associations), financial data, proxy data, and other generic data. Primary data that go through a horizontal aggregation step are considered as secondary data.

**Sub-processes**: those processes used to model other processes (=building blocks). Sub-processes can be presented in their (partially) disaggregated or aggregated form (see Figure E-2).

**Supply-chain**: refers to all of the upstream and downstream activities associated with the operations of the organisation applying the OEFSR, including the use of sold products by consumers and the end-of-life treatment of sold products after consumer use.

**Unit process dataset**: Smallest element considered in the life cycle inventory analysis for which input and output data are quantified (ISO 14040:2006). In LCA practice, both physically not further separable processes (such as unit operations in production plants) and also whole production sites are covered under "unit process" (ILCD Handbook).

**E.3. Context**
In the EF context the notion of foreground and background is based on materiality. What becomes relevant are two elements:

1. Which are the processes that are driving the environmental profile of the product portfolio (most relevant processes)?

2. What is the level of influence that the organisation performing the study has on them?

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\(^{55}\) Based on GHG protocol scope 3 definition from the Corporate Accounting and Reporting Standard (World resources institute, 2004).

\(^{56}\) Based on GHG protocol scope 3 definition from the Corporate Accounting and Reporting Standard (World resources institute, 2004).
a. Is the process run by the organisation performing the study?
b. If not, does the organisation have the possibility to have access to more specific data?

Relevance

The OEF screening identifies the most relevant processes based on the following principle: all processes contributing cumulatively more than 80% to any impact category are classified as most relevant. Each Technical Secretariat can add more processes to this list based on expert judgment. The list of relevant processes shall be included in the OEFSR. See Annex D for a more detailed explanation of the procedure to be followed for the identification of the hotspots, most relevant impact categories, life cycle stages, processes and elementary flows.

How to deal with organisational boundaries and OEF boundaries?

In principle, the materiality approach in the OEFSR means that primary data is required for processes that are identified as relevant, rather than simply those that belong in the organisational boundary. However, the approach is further influenced by the level of influence of the organisation performing the study, thus of its ability of obtaining data.

If the scope of the organisational boundaries is much narrower compared to the one of the OEF boundaries, it may happen that all processes within the organisational boundaries are not classified among the most relevant ones. However, these are the processes where the organisation has a higher control, therefore also access to primary data. To ensure that these processes are duly taken into account:

- The OEFSR shall identify a minimum list of processes (most relevant or not) for which primary data shall be gathered;
- In order to identify most relevant processes within the organisational boundary, during the screening an additional analysis shall be performed. This analysis is restricted to the organisational boundary and applies the 80% threshold as described in Annex D.

What is the level of influence of the organisation performing the study?

For the OEF, access to data might be tightly linked to the direct and indirect activities and impacts: direct activities and impacts are connected to the Organisational boundaries, which are defined as "All facilities and processes that are fully or partially owned and/or operated by the Organisation and that directly contribute to the provision of the Product Portfolio".

In practice, the power of the organisation to obtain primary data differs based on the level of "control" it has in reality. Control in -1 suppliers (directly supplying to the organisation) is expected to be higher, whilst from -2 suppliers on, control is expected to weaken.
The question is "who influences the process and its related impacts"? The OEFSR itself cannot pre-determine the level of influence but shall refer to the options provided in the Data Needs Matrix (see Table E-1). In the context of the implementation of an OEFSR the following cases can be found:

**Situation 1**: the process is owned/ operated by the organisation applying the OEFSR \(^{57,58}\).

**Situation 2**: the process is partially owned/ operated or not owned/ operated by the organisation applying the OEFSR but it is possible to have access to (organisation-) specific information.

**Situation 3**: the process is not owned/ operated by the organisation applying the OEFSR and this organisation has no possibility to have access to (organisation-) specific information.

Fig. E-4 and E-5 are examples of applying the "control" approach. The expected level of control is suggested by the intensity of the colours: deep red means high level of control, grey a low level of control. In the case of products, products that do not drive the impacts of the portfolio are shown in grey.

![Figure E-4](image)

**Figure E-4 – expected level of control applied to the case of retailers**

- The retail place and in-house products are under direct control of the retailer, and for all relevant processes situation 1 applies;
- For own brand products delivered by suppliers, situation 2 applies. The option chosen will depend on the level of control the retailer has on the supplier of own products (e.g. on the figure above, P1 in the box of the -1 supplier of own...)

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\(^{57}\) The cases where the process is run by a sub-contractor to the company applying the OEFSR (e.g. when the company is branding the product but not producing it) are considered equivalent to situation 1

\(^{58}\) When a product/material is produced by the same company in different sites without altering the essential characteristics of the product, then data calculated as weighted average based on production volume per site can be used.
products might be a product where design requirements are set and controlled by the retailer);

- For 3rd party products sold by the retailer, situation 3 applies.

Figure E-5 – expected level of control applied to the case of copper production

- The smelting and refining activities of a copper producing company are under direct control of the company, and situation 1 applies;
- For raw input material, situation 1, 2 or 3 apply. The option chosen will depend on the level of control the copper producing company has on the supplier (e.g. a copper producing company may/may not own copper mines);
- For other upstream processes, situation 3 is more likely to be applied.

E.4. The Data Needs Matrix

Based on the relevance of the processes for each impact category and the level of influence an organisation applying the OEFSR will have to use for each process data according to one of the options described in Table E-1. The options described in the DNM are not listed in order of preference.

To the extent possible the secondary datasets listed in the OEFSR will be made available through a tender managed by the Commission. In cases where datasets cannot be made available through that process the OEFSR shall identify a dataset among the "free access" existing ones with the DQR available. Under no circumstance a dataset of worse quality than the minimum foreseen in the DNM can be used.

All datasets used when implementing an OEFSR should be EF compliant (see Annex F to this Guidance), including an independent review.
Table E-1. Dataset Needs Matrix (DNM)

<table>
<thead>
<tr>
<th>Situation 1: process run by the organisation applying the OEFSR</th>
<th>Most relevant process 59</th>
<th>Other process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>Provide organisation-specific data (as requested in the OEFSR) and create an organisation-specific dataset partially disaggregated at least at level 1 60 (DQR ≤ 1.6).</td>
<td>Provide organisation-specific data (as requested in the OEFSR) and create an organisation specific dataset partially disaggregated at least at level 1 61 (DQR ≤ 1.6).</td>
</tr>
<tr>
<td>Option 2</td>
<td>Use default secondary dataset, in aggregated form (DQR ≤ 3.0)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situation 2: process run by the organisation applying the OEFSR but with access to (organisation-specific information)</th>
<th>Most relevant process 59</th>
<th>Other process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>Provide organisation-specific data (as requested in the OEFSR) and create an organisation-specific dataset partially disaggregated at least at level 1 61 (DQR ≤ 1.6).</td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
<td>Starting from the default secondary dataset provided in the OEFSR, use organisation-specific activity data for transport (distance), and substitute the sub-processes used for electricity mix and transport with supply-chain specific EF compliant datasets. The newly created dataset shall have a DQR ≤ 3.0.</td>
<td>Use default secondary dataset, in aggregated form (DQR ≤ 4.0)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situation 3: process not run by the organisation applying the OEFSR and without access to (organisation-specific information)</th>
<th>Most relevant process 59</th>
<th>Other process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>Use default secondary dataset, in aggregated form (DQR ≤ 3.0)</td>
<td></td>
</tr>
</tbody>
</table>

If any of the products in the product portfolio belonging to Situation 3 are included in an existing PEFCR, the user shall rely on this information for representing this product group in its portfolio. However, if the product in the portfolio is considered to be significantly different from the one modelled in the PEFCR 61, then it is possible to use an alternative secondary dataset, better representing the product, if this dataset is EF-compliant.

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59 For the method of identifying most relevant processes, see Annex D and E2. Context in this annex; for the specific case of the user of the OEFSR, follow the indications in the OEFSR.

60 The underlying sub-processes might be based on EF-compliant secondary datasets.

61 This assumption shall be a verification check point
E.5. Procedure to determine the data needs

E.5.1. Procedure to be applied when drafting the OEFSR

The Technical Secretariat developing/revising an OEFSR shall follow the following procedure:

1) Identify the most relevant processes for each impact category. 
2) Suggest an optimal level of aggregation of unit processes for each most relevant process. The principle is that each TS should aim to "disaggregate" at the level where most important process-related information is available without undermining reliability and protection of (really) confidential information. Within the context of the EF pilot phase it is suggested to apply processes partially disaggregated at level 1. See chapter E.6. for a practical example.
3) Each OEFSR shall specify the minimum list of processes that shall be covered by organisation-specific data. The purpose is to avoid that a user without access to any primary data is able to perform an OEF study and communicate its results by only applying default datasets. Each OEFSR shall define what is mandatory based on the relevance and the possibility to have access to primary data.
4) For processes to be expected to be in situation 1, provide a list of the activity data to be declared by the applicant. For the most relevant processes the 'list of activity data to be declared' shall correspond at least to the list of activity data present in the calculation of the representative organisation. See Figure E-7 for a practical example.
5) For processes to be expected to be in situation 1, provide tables with data quality levels and ratings to be used by the applicants to calculate the "in context" DQR of the default datasets, as explained in section E.4.2. For the latter, grouping of similar processes is allowed. For all 'other processes' in situations 2 or 3 the DQR shall not be recalculated and can be taken from the dataset in case the DQR is available as meta-data or based upon expert judgment.
6) Provide default datasets to be used by the applicant for all "most relevant processes" in situations 2 and 3 and for "other processes". The default datasets shall reflect as much as possible the reality of market situation.

E.5.2. Procedure to be applied when implementing the OEFSR

The organisation implementing the OEFSR shall:

a) Determine the level of influence (situation 1, 2 or 3 described above) the organisation has for each process in its supply chain. This decision determines which of the options in Table E-1 is pertinent for each process.

b) Follow the rules mentioned in Table E-1 (Data Need Matrix, DNM) for relevant and other processes. Note that the list of default processes to be used is an exhaustive list. In case a new process is needed, the rules for situation 1 option 1 or situation 2 option 1 shall apply (i.e. the new dataset used shall be EF compliant and with a DQR not higher than 1.6).

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62 According to the procedure explained in Annex D to this Guidance. See also recommendations in the section E2. Context of this annex.
c) Re-calculate the DQR for all the datasets used for the most relevant processes, the new ones created, and other processes in situation 1 (see E.5.4. for more details about how to do this calculation).

d) The processes with substituted activity data/sub-processes shall be declared and will automatically enter the list of issue to be checked by the external verifier. The dataset used for substitution shall be EF compliant, publicly available, and have at least the same quality as the substituted default process. See chapter E.6 for more information.

E.5.3. Substitution of secondary datasets

The secondary datasets to be used are those listed in the respective OEFSR. Whenever a dataset needed to calculate the OEF-profile is not among those listed in the OEFSR, then the user shall choose between the following options:

a) To use one of the OEF-compliant datasets freely available in a Life Cycle Data Network node and considered being a good proxy for the missing one.\(^{63}\)

b) To use another dataset coming from a free or commercial source. This dataset shall have a re-calculated DQR not higher than required in the DNM.

E.5.4. Re-calculation of the DQR values

The datasets available in the OEFSR will include a context-independent Data Quality Requirement (DQR) already pre-calculated\(^{64}\). For all most relevant processes, the new datasets created and all processes in situation 1 (including processes not listed as most relevant), the applicant shall re-calculate the DQR based on the specificities of its product and supply-chain\(^{65}\). For all other processes the applicant shall use the DQR provided with the secondary dataset.

The formula to re-calculate the DQR is:

\[
DQR = \frac{TiR + TeR + GR + C + P + EoL}{6}
\]

TeR: Technological-Representativeness  
GR: Geographical-Representativeness  
TiR: Time-Representativeness  
C: Completeness  
P: Precision/uncertainty  
EoL: End-of Life Formula

In particular, three parameters shall be adapted by the applicant: time-representativeness (TiR), geographical-representativeness (GR), and technology-representativeness (TeR). All the other parameters in the DQR formula shall remain as quantified in the original dataset.

\(^{63}\) Such decision will be a "control point" for the verifier.

\(^{64}\) This is not valid for the datasets that will be used for the supporting studies.

\(^{65}\) The re-calculation will be a "control point" for the verifier, meaning that the decisions taken assigning new values to the TiR, GR, and TeR parameters shall be verifiable.
In order to assign the most appropriate value to the three parameters, the OEFSR shall include clear requirements about how to recalculate TiR, TeR, and GR. These requirements could be the same for all processes.

In Table E-2 it is reported, for sake of example, a possible way to provide reference requirements.

### Table E-2 Quality level and rating for the data quality criteria

<table>
<thead>
<tr>
<th>Quality level</th>
<th>Quality rating</th>
<th>TiR</th>
<th>TeR</th>
<th>GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good66</td>
<td>1</td>
<td>The TiR of the dataset is not older than 4 years with respect to the date of publication of the OEF-profile</td>
<td>The technologies used are exactly the same as the technologies covered by the dataset</td>
<td>The process takes place in the same country as the one for which the dataset is valid for.</td>
</tr>
<tr>
<td>Good</td>
<td>2</td>
<td>The TiR of the dataset is not older than 6 years with respect to the date of publication of the OEF-profile</td>
<td>The technologies used are included in the mix of technologies covered by the dataset</td>
<td>The process takes place in the geographical region (e.g. Europe) for which the dataset is valid for.</td>
</tr>
<tr>
<td>Fair</td>
<td>3</td>
<td>The TiR of the dataset is not older than 8 years with respect to the date of publication of the OEF-profile</td>
<td>The technologies used are similar to those covered by the dataset</td>
<td>The process takes place in one of the geographical regions for which the dataset is valid for.</td>
</tr>
<tr>
<td>Poor</td>
<td>4</td>
<td>The TiR of the dataset is not older than 10 years with respect to the date of publication of the OEF-profile</td>
<td>The technologies used show several relevant differences compared to the technologies covered by the dataset</td>
<td>The process takes place in a country that is not included in the geographical region(s) the dataset is valid for, but sufficient similarities are estimated based on expert judgement.</td>
</tr>
<tr>
<td>Very poor</td>
<td>5</td>
<td>The TiR of the dataset is older than 10 years with respect to the date of publication of the OEF-profile</td>
<td>The technologies used are not representative for the technologies covered by the dataset</td>
<td>The process takes place in a different country than the one for which the dataset is valid for.</td>
</tr>
</tbody>
</table>

### E.6. How to deal with the Bill of Materials (BOM)

For OEF, Bills of Materials (BOMs) are relevant for elements in the product portfolio that are within the organisational boundaries. In these cases, the user of the OEFSR shall substitute the generic BOM used for calculating this specific element in the product portfolio with a specific one (situation 1 or situation 2).

In other cases, the rules defined in E.4 apply regarding the use of data in PEFCRs.

66 In some cases referred to as “excellent”
E.7. Example
The goal of this example is to shed more light on the newly introduced terminology and definitions.

Figure E-6 gives an example of a most relevant process with four underlying subprocesses and two direct elementary flows. The sub-processes are aggregated as system processes. This is an example of a partially disaggregated dataset, at first level.

![Diagram of a most relevant process with underlying sub-processes](image)

Figure E-6. An example of a most relevant process with underlying system processes (= aggregated sub-processes). The grey text indicates elementary flows (= "Element.flow").

In case the relevant process falls within situation 1 (namely, a process run by the company), the OEFSR shall provide a list of the activity data to be declared by the applicant. This list of activity data includes all non-elementary inputs and outputs, including the 'what', 'the unit of measure' and the 'how'. The 'how' is not addressed here as it is process specific. This 'list of activity data to be declared' shall correspond at least to the list of activity data present in the default secondary dataset. An example is presented in Figure E-7.

![Example for 1kg glass produced](image)

Figure E-7. An example of a list of activity data to be declared by the user.

In case the relevant process falls within situation 2 (namely, not run by the company but with access to company-specific information), the default electricity and transport processes can be substituted with EF-compliant more specific secondary datasets, as well as the transport activity data might be changed (see Figure E-8). In this example, the process 'Electricity, AC, consumer mix, at consumer, 1kV-60kV, EU-27' is substituted with 'Electricity, AC, consumer mix, at consumer, 1kV-60kV, NL'. The process for electricity mix NL shall be EF compliant, publicly available and have at least the same quality as the EU-27 process. The adapted process for glass shall be declared and undergo mandatory verification.
Figure E-8. An example of a most relevant default process adapted with company-specific information. Electricity, AC, NL S is a EF compliant available dataset with same quality as Electricity, AC, EU-27 S.
Annex F – EF-compliant dataset

This section has impact for primary and new secondary datasets created by pilots, and for data to be acquired by the European Commission.

A basic requirement of the PEF and OEF methods is that data shall be compliant with the entry level (EL) requirements of the International Reference Life Cycle Data System (ILCD). This is also essential to ensure that data can be made available via the Life Cycle Data Network (LCDN).

Going beyond the ILCD EL requirements, some of the EF requirements provide further specifications to ILCD EL and refer to provisions e.g. in the Product Environmental Footprint (PEF) Guide (Rec 2013/179/EU - Annex II) or the Organisation Environmental Footprint (OEF) Guide (Rec 2013/179/EU - Annex III). In those cases the more specific (and sometimes more strict) PEF and OEF requirements prevail over the ILCD EL requirements.

Several technical aspects shall be fulfilled by datasets concerned by these terms of reference in order to be considered EF compliant.

F.1 List of technical requirements to be fulfilled by datasets to be recognised as EF compliant

F.1.1. Documentation

ILCD format shall be used. Please download the developer kit at http://eplca.jrc.ec.europa.eu/ELCD3/developerPage.xhtml

Further documentation can be found at:


In order to download the editor for datasets go at: http://eplca.jrc.ec.europa.eu/?page_id=140

In the same page other tools and documents for the creation, editing and compliance checking of datasets are also available.

F.1.2. Nomenclature

Nomenclature shall be compliant with “ILCD Handbook – Nomenclature and other conventions” (including elementary flows).

EL requirements allow some grouped flows (see the reference flow list available at http://eplca.jrc.ec.europa.eu/?page_id=140).

As grouped flows like “AOX” or “heavy metals” are not preferable in the impact assessment phase, the EF tries to avoid the use of such grouped flows and urges for further specification and the break-down of grouped flows into their single components.

F.1.3. Review

The datasets shall be reviewed by at least 1 independent and qualified (internal or external) reviewer or review team.

The review report shall include at least:

- File name and administrative information
  - Data set name
  - UUID (Universal Unique IDentifier)
  - Data set provider
  - Reviewer name(s) and affiliation(s), contact
  - Review type applied (see Table 1)
  - Date of review completion (DD/MM/YYYY)
  - EF compliance
- Review reporting items for the criterion “nomenclature”
- Review reporting items for the criterion “documentation”
- Review reporting items for the criterion “Methodological appropriateness and consistency”
- Review reporting items for the criterion “Data quality”
- Review for the Data Quality score

F.1.4. Other methodological requirements

The following methodological requirements shall be fulfilled in order to classify a life cycle inventory dataset as EF-compliant:

- Cut off: a cut-off rule of 95%, based on material or energy flow or the level of environmental significance, is allowed but has to be clearly documented and confirmed by the reviewer, in particular with reference to the environmental significance of the cut-off applied. A cut-off rule lower than 95% is not allowed and the dataset is considered as not-compliant with EF requirements.
- Handling multi-functional processes: the following EF multi- functionality decision hierarchy shall be applied for resolving all multi- functionality problems: (1) subdivision or system expansion; (2) allocation based on a relevant underlying physical relationship (substitution may apply here); (3) allocation based on some other relationship.
- Direct land use change: GHG emissions from direct LUC allocated to good/service for 20 years after the LUC occurs, with IPCC default values.
• **Carbon storage and delayed emissions**: credits associated with temporary (carbon) storage or delayed emissions shall not be considered in the calculation of the EF for the default impact categories.

• **Emissions off-setting**: not to be included

• **Capital goods (including infrastructures) and their End of life**: they shall be included unless they can be excluded based on the 95% cut-off rule. The eventual exclusion has to be clearly documented.

• **System boundaries**: system boundaries shall include all processes linked to the product supply chain (e.g. maintenance).

• **Fossil and biogenic carbon emissions and removals**: removals and emissions shall be modelled as follows:

**Time period**: emissions and removals shall be calculated as if released or removed at the beginning of the assessment method (no time discount is allowed).

**GHG emissions – fossil**

These flows account for greenhouse gas (GHG) emissions to any media originating from the oxidation and/or reduction of fossil fuels by means of their transformation or degradation (e.g. combustion, digestion, landfilling, etc.).

**Modelling requirements**

*All GHG emissions from fossil fuels (including peat and limestone) shall be modelled consistently with the most updated ILCD list of elementary flows.*

**Carbon emissions and uptakes – biogenic**

This indicator covers carbon emissions to air (CO₂, CO, and CH₄) originating from the oxidation and/or reduction of biomass by means of its transformation or degradation (e.g. combustion, digestion, composting, landfilling) and CO₂ uptake from the atmosphere through photosynthesis during biomass growth – i.e. corresponding to the carbon content of product and possible biofuel. The CO₂ uptake by a native forest is excluded and not modelled. GHGs emissions and uptakes originating from carbon stock changes caused by land use change and uptakes from soil shall be modelled under sub-indicator 'climate change – land use and land transformation'.

**Modelling requirements**

*The flows falling under this definition should be modelled consistently with the most updated ILCD list of elementary flows. All biogenic flows shall be modelled:*

i. All biogenic emissions and uptakes from air are modelled separately (according ISO/TS 14067:2013);

ii. The biogenic carbon content (at factory gate) shall always be reported as meta-data;

iii. The global warming potential for ‘methane (biogenic)’ shall be the same as that of ‘methane (fossil)’.

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67 Native forest (non-degraded) - Represents native or long-term, non-degraded and sustainably managed forest (RED directive, Table 8 Annex to C(2010)3751).
Carbon emissions – land use and transformation

These flows account for the carbon uptakes and emissions (CO₂, CO, and CH₄) originating from carbon stock changes caused by direct land use change and soil carbon uptake (accumulation) and emissions through land management (land use). Carbon exchanges from deforestation, road construction or other soil activities shall be included. The CO₂ uptake by a native forest⁶⁸ is excluded and not modelled.

Modelling requirements

The flows falling under this definition should be modelled consistently with the most updated ILCD list of elementary flows⁶⁹. All carbon flows shall be modelled separately. The modelling guidelines of PAS 2050:2011 and the supplementary document PAS2050-1:2012 for horticultural products shall be followed. Soil carbon accumulation (uptake) via improved agricultural management shall be included from the model and be reported as meta-data.

F.1.5. Data quality criteria and scores

The dataset quality shall be calculated based on the six quality criteria described below. A semi-quantitative assessment of the overall data quality of the dataset shall be calculated summing up the achieved quality rating for each of the quality criteria, divided by the total number of criteria. The Data Quality Rating (DQR) result is used to identify the corresponding quality level. The semi-quantitative assessment of the overall data quality of the dataset requires the evaluation (and provision as metadata) of each single quality indicator. This evaluation shall be done according to Table F.1 and formula [1]:

\[
DQR = \frac{TiR + TeR + GR + C + P + EoL}{6}
\]

- DQR : Data Quality Rating of the dataset
- TeR: Technological Representativeness
- GR: Geographical Representativeness
- TiR: Time-related Representativeness
- C: Completeness;
- P: Precision/ uncertainty
- EoL: Implementation of the End of Life baseline formula

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⁶⁸ Native forest (non-degraded) - Represents native or long-term, non-degraded and sustainably managed forest (RED directive, Table 8 Annex to C(2010)3751).

⁶⁹ At the time of writing no specific flows are available for this sub-indicator.
Table F.1 Quality level and rating for the data quality criteria

<table>
<thead>
<tr>
<th>Quality level</th>
<th>Quality rating</th>
<th>C</th>
<th>TiR</th>
<th>P</th>
<th>TeR</th>
<th>GR</th>
<th>EoL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Very good</strong></td>
<td>1</td>
<td>All 15 EF Impact Categories</td>
<td>Data(^{71}) are not older than 4 years with respect to the release date or the latest review date</td>
<td>(\leq 10%)</td>
<td>The technologies covered in the dataset are exactly the one(s) modelled</td>
<td>The processes included in the dataset are fully representative for the geography stated in the title and metadata</td>
<td>The EoL formula [2] is implemented in the entire dataset (foreground and all background processes)</td>
</tr>
<tr>
<td><strong>Good</strong></td>
<td>2</td>
<td>12-14 PEF Impact Categories (and all 10 categories classified I or II in ILCD are included(^{72}))</td>
<td>Data are not older than 6 years with respect to the release date or the latest review date</td>
<td>10% to 20%</td>
<td>The technologies modelled are included in the mix of technologies covered by the dataset</td>
<td>The processes included in the dataset are well representative for the geography stated in the title and metadata</td>
<td>The EoL formula [2] is implemented in foreground level-1 + level-2 disaggregated processes (see Figures E.2 and E.3)</td>
</tr>
<tr>
<td><strong>Fair</strong></td>
<td>3</td>
<td>10-11 PEF Impact Categories (and all 10 categories classified I or II in ILCD are included)</td>
<td>Data are not older than 8 years with respect to the release date or the latest review date</td>
<td>20% to 30%</td>
<td>The technologies modelled are representative of the average technology used for similar processes</td>
<td>The processes included in the dataset are sufficiently representative for the geography stated in the title and metadata</td>
<td>The EoL formula [2] is implemented in foreground at level-1 disaggregated processes (see Figure E.2)</td>
</tr>
<tr>
<td><strong>Poor</strong></td>
<td>4</td>
<td>8-9 PEF Impact Categories (and all those covered are classified I or II in ILCD)</td>
<td>Data are not older than 10 years with respect to the release date or the latest review date</td>
<td>30% to 50%</td>
<td>Technology aspects are different from what described in the title and metadata</td>
<td>The processes included in the dataset are only partly representative for the geography stated in the title and metadata</td>
<td>The EoL formula [2] is not implemented, but all information and data needed to calculate all parameters in the EoL formula are available and transparently documented</td>
</tr>
<tr>
<td><strong>Very poor</strong></td>
<td>5</td>
<td>Less than 8 PEF Impact Categories (and all those</td>
<td>Data are older than 10 years with respect to the</td>
<td>&gt; 50%</td>
<td>Technology aspects are completely different from</td>
<td>The processes included in the dataset are not</td>
<td>The EoL formula [2] is not implemented, but all information and data needed to calculate all parameters in the EoL formula are available and transparently documented</td>
</tr>
</tbody>
</table>

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\(^{70}\) In some cases referred to as “excellent”

\(^{71}\) The reference time is the one when data have been originally collected and not the publication/calculation date. In case there are multiple data, the oldest is the one against which the calculation should be made.

\(^{72}\) The 10 impact categories classified in ILCD Handbook as category I or II are: Climate change, Ozone depletion, particulate matter, ionizing radiation human health, photochemical ozone formation, acidification, eutrophication terrestrial, eutrophication freshwater, eutrophication marine water, resource depletion mineral fossil and renewable.
The data quality scoring is requiring expert judgments and the application of a “materiality” principle. Materiality here is used in the meaning of considering what is relevant in the specific case for the quality of the dataset, that is which are the processes/data most relevant according to the experience and judgment. For example: the fuel mix composition used in a country is important for the considered impact assessment indicators, therefore the age of that data shall be taken into account, while the age of data related to some auxiliary materials that it is known do not affect the final results can be considered not relevant.

In order to correctly calculate the TiR for a dataset it is necessary to refer to the age of the data when collected. For example, if a model created 1 year ago is using data from 20 years ago, it means that TiR must be considered 20 years. If a model or primary data are considered by the dataset developer as being still valid, and this is confirmed by the reviewer, then the age of the data could be reduced. If data are based on a qualitative assessment and not primary data, e.g. expert judgment – then the TiR shall be based on the expert declaration of the data time validity.
Annex G – Register of changes

Date of change: 17/02/2016

The list of major changes in version 4.0 compared to the previous version of the same Guidance (v. 3.1) are listed below:

Bringing the document in line with the Guidance for the PEF pilots where relevant:

- Requirements regarding the minimum list of processes to be covered by primary data were added;
- Clearer instructions on how to define the representative organisation;
- Stepwise approach to the development of OEFSRs;
- Changes in Table 2 (reference timing), including the addition of the screening review and details about communication;
- Intermediate approval of the draft OEFSR (based on the screening report) by the SC with possibility to ask for a reconsideration of the scope and/or representative product(s);
- Adaptations to the realities of the data tenders were added, together with instructions for datasets eventually not covered by the tenders;
- The 2nd physical and 2nd virtual consultations have been merged into a single one;
- Requirements regarding the competences of the verifier and reviewer qualifications were set to indicative only;
- The conditions to stop a pilot have been clarified.
- Normalisation factors have been added in Annex A;
- Annex B (OEFSR template) has been adapted;
- Annexes D (identification of hotspots) and F (EF-compliant datasets) were added.

OEF-specific changes

- Taking into account the specificities of a wide OEF portfolio and introducing the possibility to create sub-portfolios;
- Clarifications on benchmarking;
- Clarifications on the relationship between PEFCRs and OEFSRs;
- Annexes C (supporting study template) and E (OEFSR data needs) were added.