Nordic Council of Ministers

Integrated Product Policy 2020

A NORDIC DISCUSSION PAPER REGARDING A COHERENT EUROPEAN PRODUCT POLICY

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– A Nordic discussion paper regarding a coherent European Product Policy

Preben Kristensen

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Abbreviations

CE	Circular Economy
CEN	European Committee for Standardization
COM	EU Commission
CSR	Corporate Social Responsibility
DG	EU Commission Directorate General
EEE	Electrical & Electronic Equipment
EF	Environmental Footprint
EMAS	Eco-Management and Audit Scheme
EN	European Norm
EPD	Environmantal Product Declaration
EPR	Extended Producer Responsibility
ETV	Environmental Technology Verification (pilot program)
EUEB	The European Union Eco-labelling board
GPP	Green Public Procurement
ILCD	International Reference Life Cycle Data System
IPP	Integrated Product Policy
IPTS	JRC Institute for Prospective Technological Studies
ISO	International Standardization Organization
JRC	Commission Joint Research Centre
LCA	Life Cycle Assessment
LCC	Life-Cycle Costs
MEErP	Methodology for Ecodesign of Energy-related Products
NEF	Nordic Environmental Footprint network
NGO	Non-Governmental Organization
OEF	Organizational Environmental Footprint
OEFSR	Organizational Environmental Footprint Sector Rules
PEF	Product Environmental Footprint
PEFCR	Product Environmental Footprint Category Rules
PP	Professional Procurement

ROHS	Restriction of Hazardous Substances (Directive)
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goals
SIP	Sustainable Industrial Policy
TCO	Total Cost of Ownership
UCP(D)	Unfair Commercial Practice (Directive)
UN	United Nations
WEEE	Waste Electrical and Electronic Equipment

Abstract

The EU Commission published a comprehensive action plan for circular economy in 2015. At a number of meetings since then the European Council has request the Commission to establish mechanisms for the market to significantly contribute to a circular economy including measures for the market to reduce climate impact. Now the methodological fundament needed has been finally established and it remain for the new Commission to demonstrate how the toolbox may be applied in a coherent and effective European product policy.

The toolbox is the result of nearly 15 years of work and comprises harmonized guidelines for lifecycle based assessment of environmental footprints of product categories (PEFCR) and organization sectors (OEFSR) and also guidelines for 3rd party verification, benchmarking and communication. The guidelines have been tested in more than 20 pilot projects representing more than 50% of the respective (European) supply chains regarding product categories like dairy, shoes and textiles. The guidelines build upon lifecycle based Product and Organizational Environmental Footprint (PEF and OEF) standards developed by the Commission and published in Off. Jour. in 2013.

By the use of the developed toolbox it is now for the first time possible uniquely at the European market to define and credible communicate what is "a green product" and what is not.

The paper discusses possible measures for how to apply the toolbox in establishing and implementing a coherent new European product policy with objectives to significantly reduce especially products environmental (and climate) footprints in the future.

Preface

With the development of a harmonized LCA methodology for assessment of environmental properties of products (Product Environmental Footprints – PEF) and organisations (Organisational Environmental Footprints – OEF), the Commission fulfil a long-requested need for a common European framework regarding environmental assessment and market communication.

Provided the new methodology will be proper implemented on the European market, it will now for the first time be possible to have an unambiguous and verifiable definition of a "green" product or a "green" company – which will ease the market communication of credible information to the benefit of consumers, professional purchasers, shareholders, financial institutions a.o. – and which is a precondition for having "the market" involved substantially in the transition toward a Circular Economy.

From the publishing of the PEF/OEF toolbox and until political measures are to be introduced (*transition phase* 2018–21) the Commission will analyse the future uses of the methods in relation to *existing* EU legislation – e.g. the Ecolabel Regulation, the EMAS Regulation, the Ecodesign Directive, the Directive for Unfair Commercial Practices (UCP) a.o. It is expected, that the Commission in 2020–21 will present a proposal for a more holistic policy for approaching "a single market for green products". The Commission has in March 2019 published a step stone in this process: "Towards an EU Product Policy Framework contributing to the Circular Economy".[1]

The Nordic Sustainable Consumption and Production (SCP) group established in 2015 the Nordic Environmental Footprint authority network (NEF group). The aim of the group is to coordinate Nordic efforts related to the Commission PEF/OEF project. The group has contributed to the PEF/PEFCR pilot project via facilitating a number of expert inputs. The group has also disseminated knowledge of the Commission initiative among Nordic stakeholders and experts via a number of Nordic workshops and conferences. Especially the group has facilitated the participation of Nordic agriculture

[1] Commission staff working document. Sustainable Products in a Circular Economy – Towards an EU Product Policy Framework contributing to the Circular Economy. SWD(2019) 92 final.

and food production experts in making the methods more operational for this sector, which – compared to other industrial sectors – is "new in class". (see Nordiske Arbejdspapirer, 2017:921). Further information of the group's activities may be found at http://www.nordic-pef.org/

The present discussion paper has been prepared under a contract with the Nordic Council of Ministers Official Committee for Environment (EK-M).[2] The objective of the paper is to form a background for initiating the discussion among Nordic authority sectors and relevant stakeholders for how to implement the PEF and OEF methods in the market. Preliminary drafts have been discussed at two informal workshops during 2019 with participation from various authority sectors. The author has updated the paper based on the discussions. It is important to note, however, that the entire text including the proposals made are the responsibility of the author (see disclamer).

[2] Cross-sectorial network and discussion paper on future use of PEF methodology supporting a green product market and a circular economy. Project no. 2018.1b.2, June 2018

1. Introduction – the road toward sustainable production and consumption

There is a growing pressure on the society for a sustainable development. This is to a large extent driven by the accentuated need for action in relation to climate changes, resource depletion and reduction of biodiversity.

The need for a sustainable development also put a growing pressure on companies to demonstrate that the way in which they are producing is environmental friendly, resource efficient and by the use of sustainable energy resources. – Both at the level of individual products seen in a life cycle perspective and as organisations.

"Green products", may in this understanding be defined as those that use resources more efficiently and cause less environmental damage along their life cycle, from the extraction of raw materials, to production, distribution, use, and end of life (including reuse, recycling and recovery) compared to other similar products of the same category. "Green products" exist in any product category regardless of being eco-labelled or marketed as green; it is their environmental properties and performance that defines them as "green". Higher market uptake of such products combines societal benefits of reduced environmental damage with higher satisfaction of consumers as well as potential economic benefits for producers and consumers through more efficient use of natural resources.[3]

[3] Communication from The Commission to the European Parliament and The Council. Building the Single Market for Green Products. Facilitating better information on the environmental performance of products and organisations. Brussels, 9.4.2013, COM(2013) 196 final.

"Green companies" may in parallel be defined as companies which improve their own processes, influence their suppliers and others up and down the value chain including stock market and investors and generate innovation. A company that integrates "life-cycle thinking" in strategies and decision-making can minimise its environmental impact, both direct and indirect.

The need for a sustainable development and not least to "green" the market has been addressed for many years in various international fora – including in the Nordic Council of Ministers. Some of the key policy agreements and developments in this field have been highlighted in Annex 1.

1.1 Commission initiative on "Single Market for Green Products"

To-day several more or less comparable methodologies are available and used across Europe to assess and communicate the environmental impact of products and organisations. This situation has led to:

- additional costs for those companies who wants to assess and communicate the environmental performance across Europe;
- reduced opportunities for cross border trading of green products;
- risk of "green wash", as some businesses label products with a high environmental profile without proper documentation (false claims);
- mistrust from consumer and business in labeling schemes and claims due to lack of clarity;
- missed opportunities for promoting resource efficiency and for a European Circular Economy.

The Commission therefore initiated work for establishing a common harmonized fundament for environmental communicating of products and organisations and presented the new harmonized methods – Product and Organization Environmental Footprint (PEF and OEF), as part of the initiative "Building the Single Market for Green

Products" in May 2013.[4] The "standards" are intended to be the common European fundament for assessments of environmental profile of products and organizations and should lead to credible 3rd party verified product footprints for business to be presented to the market by their own choices of marketing and communication vehicles.

The standards are important for the progress of several EU policies: The achievement of a "single market for green products" (2010), the Europe 2020 strategy for "a resource efficient Europe" (2011) and the action plan for the Circular Economy (2015).

In the period 2013–2018 a number of supporting actions were made to demonstrate the uses of PEF and OEF regarding the development of PEFCR and OEFSR, benchmarks, verification principles and market communication.

The methodology is now left for voluntary uses by stakeholders. The Commission recommend that both private and public stakeholders apply the tools in supply chain management and in market communication (Transition phase, 2018–21).

The Commission intend in 2021 to issue a comprehensive proposal regarding how to use the methods to promote the overall objectives of "a circular economy" and "greening the European market". In the meantime, Commission will analyze how the methods may be applied in existing legislation e.g. the EU Ecolabel, the EU Energy Label, Green Public Procurements (GPP) and The EU Ecodesign Directive. The Commission has initially suggested to apply PEF methodology in the further development of high performing sustainable battery cells and battery packs/modules production to achieve the lowest environmental footprint possible.[5]

There is no "stand-still" of legislation for member countries. Some member states have already initiated the use of PEF and OEF: Belgium suggests national uses of PEF in construction products and France on product labelling. Italy has prepared a national legislation for a labelling scheme of products "Made Green in Italy" based on the PEF tool-box. Other claims regarding PEF based climate properties of products may be expected on a voluntary basis.

The Commission has announced that they intent to support all market activities which are following the rules of the tool-box including 3rd party verification.

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[4] Commission Recommendation of 9 April 2013 on the use of common methods to measure and communicate the life cycle environmental performance of products and organisations, 2013/179/EU.

[5] Europe on the Move – Sustainable Mobility for Europe: safe, connected and clean COM(2018)293 final, Annex 2 Strategic Action Plan on Batteries.

Recently the President of the European Commission, Ursula von der Leyen, has announced the need for a "New Green Deal" for EU where PEF may be relevant for a number of existing and (possible) future initiatives, e.g. a 2030 Biodiversity Strategy, the Circular Economy Action Plan, a new Farm to Fork Strategy, a Green Financing Strategy a new EU Climate Law, a Zero Pollution Strategy, a Digital Strategy and a Sustainable Europe Investment Plan and possible also an assessment methodology for a possible new CO_2 claim for cars.[6]

[6] EU Commission presentation at the NEF group conference "Moving toward sustainability" 19 November 2019 (www.nordic-pef.org)

2. Greening the market – a possible vision

It is important, that the European market significantly contributes to a circular economy and a low carbon society. Therefore, the development and market share of products and services with low environment footprint must be much higher than today. The preconditions are that the existing instruments and not least their implementation in the market must be significantly strengthened.

The Commission has now provided basic instruments for "greening the market" by the following achievements:

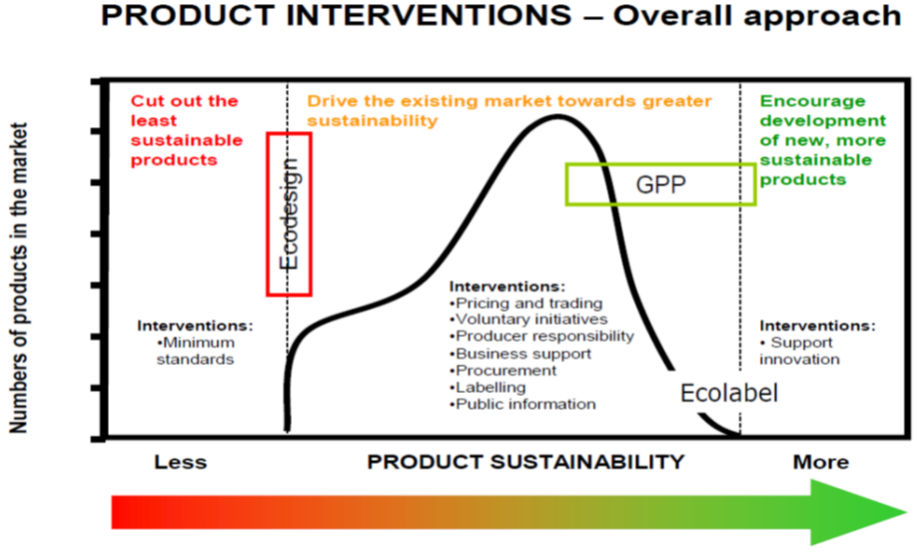
- Two life cycle based standards for quantifying environmental impact published in Official Journal – the PEF and OEF methods. The methods may facilitate credible market communication irrespective of the communication being in the form of the EU Ecolabel, a private label or claim. Based on the methods, it is for the first time possible to define what's "green" and what's not in common for EU;
- Generic guidelines have been elaborated for how to cook down the PEF and OEF methods into usable tools for specific product categories and organisations. The uses of the guidelines have been demonstrated by the elaboration of more than 20 PEFCRs and 2 OEFSRs. By these tools, it is cost-effectively possible for producers to focus on the environmental impact of special importance for their product category. To facilitate low cost uses, the Commission has established a database free of charge (until 2021) for high quality data to be used when specific data are missing. Presently the database contains about 6,000 datasets;
- To support market communication a benchmark system has been demonstrated, defining the environmental footprint of the (theoretical) average product of the category and potentially also the quartiles. By this system, it is possible for the producer to document claims of *relative* environmental quality of the product compared to similar products;

- Minimum requirements for market communication have been elaborated and tested. The communication should be transparent, available, accessible, reliable, complete, comparable and clear;
- Cost-effective guidelines for 3rd party verification have been tested and recommendations made – to be applied if used in market communication and in comparison, with similar products on the market.

The stakeholders for the uses of the methodology are producer, supply chain, professional and private customers (consumers), assurance companies, investors and shareholders.

The figure 1 below may illustrate how the market may be directed toward a circular economy in a more effective way by using the new methodology in existing policy measures.

Figure 1: Mechanisms for driving the market toward greening of products



Note: GPP: Green Public Procurement.

Source: European Commission (2013).

There are 3 major mechanisms which should be reinforced and supplemented:

- *Measures to prevent the least sustainable products access to the European market*: The Ecodesign Directive has been proved to be an effective tool to drive energy related products in a less energy demanding direction, which also increasingly include related aspects as reparability, durability, recyclability a.o. The principles of the directive should be applied also for other product categories and environmental impacts;
- *Measures to encourage development and marketing of more sustainable products*: The EU Ecolabel and the progressive criteria setting process is presently the most important tool, which should be both reinforced and supplemented by other means;
- *Measures to drive the existing market toward greater sustainability*: The use of the Green Public Procurement should be further strengthened and disseminated to the private sector.

The primary challenges are:

- How to apply the principles of the Ecodesign Directive to set regulatory minimum requirements for priority impacts and for priority products – going beyond the scope and coverage of the existing directive?
- How to reward the best in class products by supplementary means to the EU Ecolabel and thus create incentives for more broad product innovation in the marked?
- How to increase the use of the principles for green public procurement to boost/seed the market for green products, where both the public and the private sector contributes significantly?
- How to drive the entire market toward less environmental impact? It may be relative easy to convince the "best in class" to communicate their products green position by the EU Ecolabel or other means – but how to motivate the "next to best"?
- How to sustain the system – requirements for an effective governance system?

These mechanisms and challenges will be further discussed in the next chapters.

3. Greening the market – the possible measures

As a background document for an informal workshop in April 2018 the Commission formulated 5 political working options as follows:[7]

- Business as usual: No political changes. The Annexes to COM recommendation 2013/179/EU (PEF and OEF methods) will be updated based on the experiences gained during the pilot phase (Option 1);
- Continued support to the implementation of the EF methods. The COM follow the development and maintains and update the methods when required (Option 2);
- Licensing of the right to use PEF and OEF. PEF and OEF protected as trademarks and uses licensed to interested bodies (Option 3);
- Integration of the methods in existing policies (the EU-Ecolabel, GPP etc.) (Option 4);
- New instrument on specific green claims and framework for communication. A new voluntary instrument, complementary to the EU-Ecolabel and GPP, based on a regulation similar to the Ecolabel – covering overall environmental performance as "green product", "low carbon", climate impact and comparative claims (Option 5).

The Commission has elaborated further on these 5 options in a discussion paper from November 2018 to be applied for public consultations.[8]

[7] Workshop on the potential policy options to implement the environmental footprint methods. Background document. 26 April 2018.
[8] Consultation on the potential policy options to implement the Environmental Footprint methods. Background document. 5 November 2018.

For the present discussion paper the following structure has been applied:

- Policy measures for framing the market for "green" products (Section 3.1);
- Measures to support Use of PEF and OEF in existing product policy tools (Section 3.2);
- New tools to support the market (Section 3.3);
- Other possible measures to support the use of PEF and OEF in the market (Section 3.4).

3.1 Policy measures for framing the market for "green" products

3.1.1 Baseline: The market development regarding green goods if the present policy is continued unchanged ("Business as usual" – Commission option 1)

Continued implementation of the existing policy instruments introduced or strengthened by the SCP/SIP Action Plan – as directed by the European Commission Recommendation 2013/179/EU. The Action Plan includes different policy instruments addressing respectively production (i.e. EMAS), products (i.e. Ecodesign, Energy label, the EU Ecolabel and GPP) and consumption (i.e. Retail Forum).

An updated "baseline" in 2019 would presumable comprise the following aspects:

- PEF and OEF remain as "standards" published in Off. Journal and may be to the inspiration of and referred to in any national or international legislation as well as in any complaints regarding unfair marketing. However, the standards will be gradually reduced in importance if not regularly updated, as new findings will not be dealt with unless ISO or other standardization fora would take up the challenge;
- Commission has elaborated and supported access to high-quality secondary LCA inventory data and offered the data free of charge (presently until 2021). If this is not sustained in future it will gradually be reduced in importance and a crucial precondition for work with PEF and other LCA based policy will disappear;

- The PEFCRs development and supporting documents and guidelines (guide for elaboration of PEFCR and OEFSR, verification method etc.) may be applied by the sectors on a voluntary basis and by relevant parts of the supply chain. High quality guidelines need updating on a regular basis when new knowledge and understandings are available. If not sustained they will be reduced in importance and uses;
- The EU Ecolabel regulation may include parts of PEF and relevant PEFCRs when updated based on the decisions by relevant authorities and the eco-labelling board (EUEB). The ecolabel will continue to elaborate their own criteria for products which fulfil a consumer appeal, a business interest and an environmental potential for improvements. Those product categories not fulfilling all three conditions will not be addressed – and neither will the producers, who may not be interested in using the ecolabel in their marketing of various reasons;
- The market communication will be based on a variety of the present type-1 ecolabels (ISO 14024), private labels and other claims without a credible common methodological fundament;
- A number of new labels and claims will appear in the future regarding climate and other issues being currently in focus. The information may be viewed credible if documented by the use of PEF (PEFCR, verification principles etc.) but without inspection and enforcement – the result may be an even higher confusion of consumers and companies and an increased costs for companies;
- New Ecodesign Regulation based – and updates of existing – may consider also the uses of PEF. But without a substantial back-up from the Commission and member states, energy aspects will still be the dominant parameter to address;
- GPP guiding documents will presumably still be based mainly on the EU-Ecolabel and Energy Label work and will not be pushed forward as a major mechanism to seed the green market.

The future role of the international market mechanisms for circular economy and climate action will be relative low as many companies will not find it feasible to contribute and will find their own way.

3.1.2 *A new overarching product policy legislation*

To-day no overarching, integrated EU policy instrument exists that covers the sustainable production and consumption of products. Instead, the EU product policy framework consists of a patchwork of regulations and other political means. When multiple policy tools apply to the same products, there is a risk of overlap, inconsistencies and unintentional gabs.

The "Reflection Paper Towards a Sustainable Europe by 2030"[9] include an analysis of the relative progress in the EU of the 12 UN Sustainable Development Goals (SDGs). SDG12 (Sustainable production and consumption) is the second lowest in progress for the EU Member States. This relative low position is supported by general observations of the large volumes of textiles, furniture and WEEE that are still being landfilled or incinerated in Europe in spite of many years of public focus.

Evidently there is a need for a stronger and overarching legislative instrument for speeding up progress toward a circular economy.

Part of the objectives for an overarching legislation should be a requirement of a regular consideration of overall consistency of the policy interventions. This begins with considering which product categories to cover, setting minimum requirements for sustainable performance of products, goals, enforcement and governance.

By the development of the PEF and OEF methods the common horizontal fundament for assessment of environmental impact of products are now established. How these tools are to be used and supplemented by the various political measures should be defined in a product policy including the roles for both the public and the private sector.

3.2 Use of PEF and OEF in existing product policy tools *(Commission option 4)*

The PEF and OEF methods should be integrated in existing voluntary and mandatory policy instruments where relevant and technically feasible, i.e. for instruments where a life cycle approach is requested. For instance:

[9] https://ec.europa.eu/commission/publications/reflection-paper-towards-sustainable-europe-2030_en. COM (2019), 22.

- Instruments such as the EU Ecolabel and Energy Label, GPP for the criteria-development process and the creation of Sectoral Reference Documents for determining relevant environmental impacts and life cycle-based key performance indicators;
- OEF/OEFSRs to replace or supplement EMAS and for relevant sectors falling under the Industrial Emissions Directive to widen requirements and reporting on additional environmental aspects;
- The European Pollutant Release and Transfer Register (Regulation 166/2006) may be modified to integrate information based on OEF and its elements on a voluntary or obligatory basis;
- Establish a set of incentives, both by the public and private sector, which would reward companies and reinforce the positive effect on environmental performance improvements.

In the following the uses of especially PEF and PEFCR have been dealt with in relation to a number of existing policy tools

3.2.1 The EU Ecolabel

The EU Ecolabel "the Flower" was established in 1992. The label may be awarded to products and services which fulfill the criteria adopted for the label. The criteria elaborated are based on life cycle thinking – from raw material extraction, to production, distribution and disposal – and intended to target the environmental performance of the best 10–20% of the marketed products within the category.

The label is an established market communication method in many EU countries and in progress in other. The label should be supported and further strengthened. The generic assessment of the environmental profile of the product category focused (hot spot analysis) is based on available life cycle assessments and other information. The ISO standard for life cycle assessments are applied as a guide. Based on the environmental hot spot analysis, other considerations regarding e.g. social aspects a.o., possibilities to actual improve the product category performance and control, the product criteria are elaborated. Criteria are updated at a regular interval of 3–7 years depending on the progress in product category developments.

According to Article 6(3) of the regulation[10] EU Ecolabel criteria shall be determined on a scientific basis considering the whole life cycle of products. As PEF, internationally is believed to be the best scientific basis of to-day, it seems obvious to explain this requirement by the use of PEF and the category specifications of PEFCR.

In a discussion paper prepared by the Commission for the consideration of EUEB the following 5 options for the future development of EU ecolabel was presented:[11]

1. Business as usual – Do nothing;
2. Carry on a PEF study in preparation to criteria development: Ad-hoc study for the product group in scope regarding development of new criteria with the objectives to identify impact category hot-spots;
3. Develop EU Ecolabel criteria based on an existing or for the purpose developed PEFCR: PEFCR will then become an integral part of the preliminary report already foreseen in the Regulation;
4. EU Ecolabel criteria based on PEF thresholds: *Environmental* criteria based on PEFCR and limited to the identified most relevant impact categories. Type of criteria would be lifecycle based demands and not specific processes. The applicant should document the requirements based on a PEFCR compliant PEF study. Data from such studies to be compiled and applied for surveillance of market performance (and thus for updating of criteria). Hazardous substances to be specifically added as present;
5. EU Ecolabel criteria based on PEF classes of performance: A graded PEF criteria (A–C) based on the single score for all 16 impact categories included in PEF – as an addition to other criteria selected based on PEF hot-spots for "environment" and other considerations.

The Commission expressed at a NEF conference in Helsinki September 2018, that if non of the options 2–5 would be accepted, the Commission may promote a new legislation for PEF communication as a parallel to the flower regulation (see section 3.3.1).

[10] Regulation (EC) No 66/2010 of The European Parliament and of The Council of 25 November 2009 on the EU Ecolabel.
[11] Options to integrate the PEF method in the development of EU Ecolabel criteria. EU Commission discussion paper, 14 February 2019.

In a recent study prepared by the Finnish Environment Institute (SYKE)[12] the following 3 options for the Nordic Swan to apply the PEF toolbox to be progressed over time were outlined:

1. *Use PEF information*: The Swan could use the PEFCRs and product PEFs available as an information source in the criteria setting process, whenever such information is available;
2. *Create PEF information*: The Swan could actively participate in producing PEF (elaboration of PEFCR) information. This could involve participating in the PEFCR development processes or proposing the development of new PEFCRs for the purpose of criteria setting (corresponding to Commission option 3);
3. *Require PEF information*: The Swan could promote the integration of PEF into the ecolabel scheme, by requiring PEF studies from the license-applicants based on relevant PEFCRs as documentation for fulfillment of the (relevant) criteria. The criteria should then be based on a PEFCR functional unit and focus on the most relevant impact categories (identical hotspots). These hotspots should be complemented by criteria for aspects of special Nordic concern regarding e.g. special chemicals of concern (based on hazardous properties), social aspects, durability, emerging issues a.o. As a short-term option, a PEF study/value could be included as a "point requirement" in the Swan criteria. The Swan would define the PEF value (the criteria) that would be required from applicants or would act as a baseline for giving points (corresponding partly to Commission option 4).

The report recommends a mutual cooperation between the two schemes to benefit from each other's information. This is important in order to avoid very different results in what will be considered as an environmentally "best in class" product – to the obvious and non-constructive confusion of the consumers.

[12] Ari Nissinen, Johanna Suikkanen, Hanna Salo, Finnish Environment Institute (SYKE) (sept. 2019): Product Environmental Information and Product Policies. How Product Environmental Footprint (PEF) changes the situation?

3.2.2 The EU Energy Label

The EU Energy Label helps consumers choose energy efficient products. Products are currently labelled on a scale of A+++ (most efficient) to G (least efficient). However, as a result of the development of more and more energy efficient products, products will be gradually relabeled with the reintroduction of the simpler A to G scale.

Manufacturers will have to upload information about their products into a registration database before placing these products on the European market. Consumers will be able to search this database for energy labels and product information sheets.

The energy labelling requirements for individual product groups are created under the EU's Energy Labelling Framework Regulation (2017/1369), in a process coordinated by the European Commission.

The communication of the energy label is simple and easy to understand for the consumers. Therefore, the label has had a significant effect in the European market. In general, a low energy consuming product may be used in a way leading to significant energy consumption. Therefore, there should also be attached to the label some guidance of the proper use of the labelled products.

PEF and relevant PEFCRs should be applied – in addition to other concerns – when energy label criteria are to be elaborated for new product categories and when existing criteria are to be updated. If a PEFCR is not available, the Commission should initiate the development process.

3.2.3 The EU Ecodesign Directive

The EU Ecodesign Directive has proven to be an effective tool for improving the energy efficiency of products. It eliminates the lowest performing products from the market, significantly contributing to the EU's 2020 energy efficiency objective. It also supports industrial competitiveness and innovation by promoting better environmental performance of products throughout the Internal Market.

The Ecodesign requirements for individual product groups are created under the EU's Ecodesign Directive as specific product regulations, in a process coordinated by the European Commission. Industry sectors may also sign voluntary agreements to reduce the energy consumption of their products. The Commission formally recognizes such agreements and monitors their implementation.

According to the directive, environmental aspects are part of the scope:

> "In the interest of sustainable development, continuous improvement in the overall environmental impact of those products should be encouraged, notably by identifying the major sources of negative environmental impacts and avoiding transfer of pollution, when this improvement does not entail excessive costs."[13]

It is also stated, that "although a comprehensive approach to environmental performance is desirable, greenhouse gas mitigation through increased energy efficiency should be considered a priority environmental goal pending the adoption of a working plan."

So according to the directive other than energy concerns may be considered, provided it is "not too difficult". In some of the Ecodesign Regulations thou, the requirements already go beyond energy demands.

Many of the products covered by the Ecodesign Directive have today achieved a high energy efficiency, very close to the maximum possible with the present available technology. This means that further energy efficiency improvements are limited and will have a limited environmental importance. Accordingly, it is increasingly important gradually to focus other relevant impact categories, e.g. the resource consumption/ material efficiency/uses aspects of energy-related products. PEF should be applied both to identify the impact categories of highest impact – but also to assess the risk of burden shift – i.e. the risk of increasing the impact of some categories while lowering the impact of others.

Currently however, the method applied for assessment of resource uses in EcoReport Tool and the MEErP methodology is insufficient and there is no uniform way to calculate the resource consumption.[14]

Robust, verifiable and recognized methods for environmental assessment have not yet been available for the Ecodesign process. But the PEF method – and especially the PEFCRs – now open up the possibilities for setting both quantifiable and verifiable

[13] Directive 2009/125/EC of The European Parliament and of The Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.

[14] Marianne Wesnæs, SDU Life Cycle Engineering, Peter Skov Hansen, Viegand Maagøe, Anette Gydesen, Viegand Maagøe (November 2019): Initial analysis of EcoReport Tool. Suggestions for improvement of EcoReport tool, based on practical experience, as well as analysis of the advantages and disadvantages of implementing elements from the Product Environmental Footprint (PEF) method (Report to Danish EPA (draft).

requirements of high priority impacts as systematically selected among the 16 LCA impact categories.

The primary challenges are both to implement the systematically uses of the PEF for energy consuming products in the existing Directive (to extend the MEErP method) and how to apply the principles also for other than the energy consuming products (e.g. food products, textiles etc.).

The Commission has in 2015 requested CEN to establish horizontal frames for the future development of ecodesign regulations under the directive to promote the circular economy (mandate 543[15]). The objectives of the mandate are to strengthen the focus on life cycle based recirculation of materials in addition to "environmental design" (energy efficiency, function and quality). LCA considerations will be given high priority including emphasis on prolonged lives of products, reuse of components of products or recirculation of materials in outdated products, how to reuse components in new products. Also the demands for the companies for documenting compliance are to be dealt with. The new standards are under preparation in 6 CEN working groups.

If decided to take up the PEF/PEFCR in the EcoReport/MEErP methodology, the existing strengths of the MEErP should not be impacted, e.g:[16]

- The EcoReport as a common calculation tool across the preparatory studies for different product categories;
- A tool usable for all stake-holders. It is important that everyone can understand the overall approach and the results, although there are underlying estimations with a high complexity, that not everybody can be expected to be familiar with;
- New calculations should not complicate the process and require extended expertise, time and resources.

The extend of applying the PEF method within the framework of the existing Ecodesign Directive will presumably be tested in the coming years. In two pilot studies (solar photovoltaic panels and rechargeable electrochemical batteries) the developed

[15] http://ec.europa.eu/growth/tools-databases/mandates/index.cfm?fuseaction=search.detail&id=564

[16] Marianne Wesnæs, SDU Life Cycle Engineering, Peter Skov Hansen, Viegand Maagøe, Anette Gydesen, Viegand Maagøe (November 2019): Initial analysis of EcoReport Tool. Suggestions for improvement of EcoReport tool, based on practical experience, as well as analysis of the advantages and disadvantages of implementing elements from the Product Environmental Footprint (PEF) method (Report to Danish EPA (draft).

PEFCRs has recently been tested as a possible supplement to the prescribed MEErP method for preparatory Ecodesign studies.

A recent Finnish project (the SCEPEF-project) examined how ecodesign in a broad term and green innovations are implemented in textile and IT companies that manufacture and/or design products in the Nordic countries. The report looked among others on how around 100 Nordic companies perceive the Product Environmental Footprint (PEF) in relation to the Ecodesign Directive.[17]

Based on the project the following findings were (among others) made:

- The Ecodesign Directive (2009/125/EC) sets a minimum level for energy-related products, and therefore, in order to improve products from an environmental perspective, the Directive should be reviewed on a regular basis. Similar regulations should be developed in other product sectors (i.e. not energy-related).

At the European Council (Environment) meeting in October 2019 commission was requested:

- "to explore whether it (PEF) can be used as one of the methodologies in developing criteria for product policy measures, e.g. EU Ecolabel, Ecodesign and EU Green Public Procurement";
- "to assess the possible application of the ecodesign principles beyond energy-related products and to put forward a legislative proposal, as appropriate".

Therefore, there seems to be political support to extend the coverage of other LCA aspects within the scope of the existing Ecodesign Directive and by the PEF methodology also now a fundament for doing so – and also political support to start the work regarding new legislation applying the ecodesign principles for non-energy related products.

[17] Salo, Hanna, Suikkanen, Johanna and Nissinen, Ari (2019):Use of ecodesign tools and expectations for Product Environmental Footprint: Case study of Nordic textile and IT companies. TemaNord, ISSN 0908-6692 ; 2019:542.

3.2.4 *Organic label*[18]

In 2007, the European Council of Agricultural Ministers agreed on a new Council Regulation setting out the principles, aims and overarching rules of organic production and defining how organic products were to be labelled

Wherever today's consumers choose to buy or eat organic products, they should be able to have confidence that these comply with strict EU rules. Products that do not meet these standards may not be referred to as organic or bear the EU's organic logo or a national equivalent. This is why the EU regulation on organic farming covers not only production and processing, but also the control and labelling of organic food.

According to the overall definition of organic production in the regulation:

> "Organic production is an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes. The organic production method thus plays a dual societal role, where it on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development."

The regulation state that organic production should "apply best environmental practices" and "contribute to the protection of the environment". The interpretation of "best environmental practice" may be the uses of PEFCRs for the relevant product category. The organic label may by the use of PEF toolbox turn into an environmental label which is toped up by organic parameters and criteria.

On the other hand, the criteria behind the organic label may also inspire companies in their future individual uses of PEFCRs for relevant products – for example by topping up the PEFCR based PEF of the product by relevant organic criteria in the same way as e.g. the EU Ecolabel will apply additional social impacts in the criteria setting.

[18] Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91.

3.2.5 Green Professional (public and corporate) Procurement

Professional purchasing of environmentally friendly goods and services – whether public (GPP) or private corporate (GCP) – can make an important contribution to sustainable consumption and production.

Professional procurement (PP) may help overcome a critical mass of demand for goods and services which otherwise would be difficult to get into the market. PP is therefore a strong stimulus for supply of green products and thus also for eco-innovation. PP may also be a stimulus for the consumers – which is also to wide extend employees in either public or private institutions/companies.

To be effective, PP requires clear and verifiable environmental criteria for products and services. The European Commission and a number of European countries have developed guidance in the form of national GPP criteria documents. The challenge of take-up by more public sector bodies so that GPP becomes common practice still remains. As does the challenge of ensuring that green purchasing requirements are somewhat compatible between Member States – thus helping create a level playing field that will accelerate and help drive the single market for environmentally sound goods and services.

The Commission's Joint Research Centre's Institute for Prospective Technological Studies (JRC-IPTS) in Seville/Spain is leading the criteria development process on the basis of an annual GPP work plan which is coordinated with the EU Ecolabel work plan.

The EU GPP process will to a large extent follow the structure of the EU Ecolabel criteria-setting procedure. It will provide stakeholders with the possibility to comment on the documents and the draft EU GPP criteria at several stages of the process. However, compared with the EU Ecolabel procedure, it will be shorter and will not involve the formal adoption of the criteria as a legal act.

The newly established informal GPP Advisory Group (AG) acts as a consultative body to the European Commission for general GPP policy issues and for the development of EU GPP criteria. The GPP AG is composed of one representative per Member State as well as five representatives of other stakeholders (i.e. civil society, industry, SMEs, public procurement and local authority).

The information (documents, questionnaires, stakeholder meetings etc.) are arranged by specific product groups.

The corporate purchase may be divided into the sourcing for supply to the business manufacture – the primary purchase (raw materials, production equipment, spare parts, energy, packaging, transport etc.) and the so called secondary purchase (food,

office furniture, cleaning materials, toilet articles, electronics, printing paper etc.). There are no information regarding the relative share of the primary and secondary purchase. A major Danish corporation within metallurgic/electronic production has estimated a fifty/fifty share (*pers. info.*).

The Corporate Social Responsibility management system is applied by a relative high number of Nordic corporations. The focus on green purchase may be given strategic priority in line with the public purchase obligations and the progress to appear in the yearly reporting (see 3.3.2).

3.2.6 Environmental Technology Verification pilot program (ETV)[19]

Environmental Technology Verification (ETV) is a new tool to help innovative environmental technologies reach the market. Claims about the performance of innovative environmental technologies can be verified by qualified third parties, the "Verification Bodies". The "Statement of Verification" delivered at the end of the ETV process can be used as evidence that the claims made about the innovation are both credible and scientifically sound. With proof of performance credibly assured, innovations can expect an easier market access and/or a larger market share and the technological risk is reduced for technology purchasers.

The information produced by the verification is public and can be used to compare performance parameters and therefore becomes an extremely useful tool to convince third-parties of the merits of a technology, potentially enhancing its market value and acceptance. The ETV Pilot Programme ran from 2013 to 2017 and was subsequently evaluated. The evaluation was to be published in the first half of 2019.

Should the ETV be made permanent the PEF methodology should be applied as a basic fundament for the assessment in parallel to the technical verification.

3.2.7 Bio-economy strategy and action plan

The European Commission has updated the 2012 Bio-economy Strategy containing an action plan to develop a sustainable and circular bio-economy for Europe.[20] The bio-

[19] http://ec.europa.eu/environment/ecoap/etv_en

[20] A sustainable Bioeconomy for Europe Strengthening the connection between economy, society and the environment Updated Bioeconomy Strategy 2018 Directorate-General for Research and Innovation, EU Commission.

economy area includes all primary production sectors that use and produce biological resources (agriculture, forestry, fisheries and aquaculture); and all economic and industrial sectors that use biological resources and processes to produce food, feed, bio-based products, energy and services.

To boost market uptake and consumer confidence multiple instruments are needed. According to the strategy this requires availability of reliable and comparable environmental performance information, which are applicable to environmental oriented policy instruments (e.g. the EU Ecolabel and Green Public Procurements). The strategy point out, that the generation and use of data shall be compliant with the Product Environmental Footprint method.

The EU funds bio-economy-related basic and applied research, for instance via the EU funding program Horizon 2020 that allocates EUR 3.85 billion for this sector. For 2021–2027, the Commission has proposed to allocate EUR 10 billion under the Horizon Europe program for food and natural resources.

It is important that the documentation and communication of bio-based products be harmonized as much as possible with non-biobased products. The PEFCR guideline and the specific PEFCRs should therefore be further implemented in the Bio-economy strategy.

3.2.8 Construction products

In 2012 CEN adopted the mandated standard EN 15804, related to the calculation of the environmental impacts of construction products. This standard has been used as basis for publishing Environmental Product Declarations (EPDs) for construction products in private national EPD programmes often associated to Green Building Certification schemes. It has been referenced in national legislations (e.g. in France and the Netherlands) and in private schemes certifying the environmental performance of buildings. However, the EN 15804 standard has never been used as reference in any European legislation related to construction products or buildings, due to methodological issues.[21]

As an outcome of discussions between CEN and the Commission, and based on the results of the different PEFCR pilots related to construction products, the Commission

[21] Commission staff working document. Sustainable Products in a Circular Economy – Towards an EU Product Policy Framework contributing to the Circular Economy. SWD(2019) 92 final.

issued a new mandate to CEN to amend the EN 15804 making it more consistent with PEF and resolve some of the methodological issues.

The amended EN 15804 (15804+A2) was published in October 2019. After the changes being made the standard will include all relevant life cycle stages, highlight benefits regarding recycling, report biogenic carbon and change the data format to ILCD. But the new EN 15804 is not fully compliant with PEF. There are especially differences in the way "end of life" stage is dealt with. Although the new standard brings the calculation a step closer to PEF than before the amendment, calculations based on EN 15804 and PEF will not lead to comparable results.

Commission has recently initiated the implementation of the revised standard in 5 construction product families to be used for CE marking. The implementation of the standard will enhance the reliability of building assessments and would be applicable as part of a PEFCR process.

The ideal situation would be, that future PEFs toped up with special requirements for the sector for construction products (15804 + A2) would be applicable for an Environmental Products declaration (EPD). The amended standard may facilitate that data included in a construction sector EPD may be usable in a PEF hot spot analysis.

3.2.9 Unfair Commercial Practices (UCP)[22]

The objective of EU rules on unfair commercial practices (UCP) from 2005 is to boost consumer confidence and make it easier for businesses, especially small and medium-sized enterprises, to trade across borders. Examples of unfair business practices include untruthful and misleading information to consumers or aggressive marketing techniques to influence their choices.

In May 2016, the Commission presented an updated version of the 2009 Guidance document on the application of the unfair commercial practices directive ("the UCPD").[23]

UCPD includes specific guidance on misleading and unfounded environmental claims, with the goal of making environmental claims clearer, more credible and transparent and to support enforcement by the Member States competent bodies. The

[22] Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market.

[23] SWD/2016/0163 : https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016SC0163

guidance addresses false, unclear, unintelligible, or ambiguous information, which includes claims related to the circular economy, in order to protect consumers from misleading commercial information. Environmental claims like "Environmental friendly", "Good for the environment" and "Climate friendly" should fulfill the requirement of the directive regarding clear, specific and credible information. In practice, however it has been difficult for the authorities (the "consumer ombudsmen") to trial companies by the use of the directive, as operational standards and guides have been missing.

Should the PEF method be adopted politically as the reference method for documenting environmental properties of products, the method may be applied in the framework of the UCP directive regarding misleading and unfounded environmental claims.

3.2.10 Other aspects

There are a number of product categories having their specific legislations and guidelines also comprising environmental concerns, e.g. various chemical groups, pesticides, cosmetics, food and food additives.

Also, regarding the Packaging Directive, Requirements for Extended Producer Responsibility, the RoHS Directive and the WEEE directive there would be a need for partly reference and use of the PEF method to assess the most important environmental issues within each regulatory area in a life cycle perspective.

Use of PEF and OEF as the basic and EU common life cycle assessment instrument should be considered whenever such legislation and guidelines are to be revised. The objective should be to strengthen the interpretation of environmental concerns to make it more verifiable and consistent with other relevant legislations. The update of the Bio-economy strategy is a good example in this respect (see 3.2.7).

3.3 New tools to support the market *(Commission option 5)*

3.3.1 New regulation setting the frames for voluntary PEF communication

A new PEF regulation may be needed for substantiate market communication which is in accordance with PEF. It would only apply to those companies that wish to use such

green claims related to their product marketing. These could include claims on overall environmental performance (e.g. "green product") or claims related to a single environmental aspect covered by the EF methods (e.g. "low carbon"). Comparative environmental claims would also be a relevant area to cover. The PEF may define whether the claim is relevant (is it an environmental issue of significance for the given product?) and whether there is any missing information or important environmental impacts that are omitted from the claim.

The principle of such regulation would be in parallel to the EU Ecolabel regulation but would not include the need for setting specific criteria. The regulation should request the reporting of the output data from PEF studies to a central register – and the documentation may be a PEF registration number which should appear visible on the product/package.

The regulation should (initially) be voluntary for the market but may if needed in future be enforced as a mandatory requirement if necessary to move the market (for priority product categories) – as supported by the Council conclusions from October 2019.

The following aspects should be dealt with:

- The advantage of a parallel regulation to the EU Ecolabel would be that the new regulation may cover other sectors than presently covered by the eco-label, e.g. food products;
- The regulations would have different objectives: The EU Ecolabel being a best in class label (an on/off type) and the new regulation would govern that the information is in accordance with PEF/PEFCR – and thus only define the framework – not (necessarily) specify pass criteria. If pass criteria are to be defined – they should be documented in accordance with the provisions behind the "benchmark" system;
- The regulation would require that the Commission would be obliged to support the maintenance and update of the PEF methodology and also support some type of registry regarding the claims and labels supported by the regulation;
- The UCP directive should be activated for market surveillance;
- The results may be a relative high number of claims and labels on the market – but the benefit is that they will all deliver credible information;

- The drawback would be a competition with the existing type 1 ecolabels like the EU Ecolabel and the existing national/regional labels like the Swan and Blaue Engel.

3.3.2 New Ecodesign – like directive for other than energy related products

The *principles* of the Ecodesign Directive should be applied also for non-energy related products. The regulation should set the frames for regulating high priority product categories and define the rules for setting limits for maximum environmental footprints for high priority impacts as a provision for entrance to the European market. Cutting out e.g. the lowest [10–30%] "performance class" value (with the highest environmental footprint/the lowest level of sustainability). The use of the PEF toolbox should be the same for both energy related and non-energy related products – but to be topped up differently defined by the type of products to be covered: Special requirements related to energy savings in the present directive and other specific requirements for e.g. food products.

3.3.3 Synergy between Corporate Social Responsibility (CSR), UN Global Compact and PEF/OEF

The possibility of integrating the PEF and OEF thinking in existing business (voluntary) environmental management measures should be considered and especially the UN Global Compact and the Corporate Social Responsibility toolbox should be analysed in cooperation with business and authorities.

The United Nations Global Compact

The UN Global Compact was established in 2000. The Global Compact is a non-binding agreement to encourage businesses worldwide to adopt sustainable and social responsible policies, and to report on their implementation. There are today more than 13,000 member corporations and organisations from more than 160 countries and national networks in more than 70 countries for facilitating cooperation and implementation. In Denmark, the national network was established in 2017.

The Global Compact is not a regulatory instrument, but rather a forum for discussion and a network for communication including governments, companies and

labour organisations, whose actions it seeks to influence, and civil society organisations, representing its stakeholders.

The Global Compact states 10 principles in the area of human rights, labor, environment and anti-corruption. The Environmental principles cover 3 main areas:

- Businesses should support a precautionary approach to environmental challenges (no. 7);
- Undertake initiatives to promote greater environmental responsibility (no. 8);
- Encourage the development and diffusion of environmentally friendly technologies (no. 9).

There is major focus on the UN Sustainable Development Goals (SDGs) and the use of Corporate Social Responsibility as the overall management system.

Corporate Social Responsibility

Corporate social responsibility (CSR) was established as an international private business self-regulation tool that aims to contribute to societal goals of a philanthropic or charitable nature. Various international laws have been developed now and various organisations have used their authority to push it beyond individual or even industry-wide initiatives. Over the last decade, it has therefor moved considerably from voluntary decisions at the level of individual organisations, to mandatory schemes at regional, national and international levels. CSR has also expanded to include supplier behaviour and the uses to which products were put and how they were disposed of after they lost value.

In Denmark, a legislative obligation for major corporations to report on their CSR activities was adopted in 2009 and reviewed and strengthened in 2015. A council for society responsibility and the UN Global goals was established in 2018 as a platform for government/private activities and dialog.

CSR is primarily a corporate management system and thus especially relevant for OEF, but the possibilities of also relating the principles of PEF, including the principles for environmental communication and marketing should be analysed in relation to both the corporate supply chain management and related to the reporting requirements of CSR in possible national legislations.

Two CSR initiatives may take advantage of OEF and PEF:

- *Climate Counts* is a collaborative effort to bring consumers and companies together to find ways to address global climate change. It assesses companies on 22 criteria including their climate footprint, impact on global warming and transparency of their environmental efforts;
- *Cleantech* – a term used to describe products or services that improve operational performance, productivity or efficiency while reducing costs, inputs, energy consumption, waste or pollution. In the yearly *Global Cleantech Innovation Index* the Nordic countries have a top position.

3.4 Other possible measures to support the use of PEF and OEF in the market

3.4.1 Continued support of the new PEF and OEF instruments by the Commission and Member States (governance) (Commission option 2)

The European Commission continues to follow the development and update of PEFCRs and OEFSRs based on the EC Guidance and to maintain and periodically update the Environmental Footprint methods.

This is a one-step forward compared to Commission option 1 (Baseline). But the following "governance" aspects should be included as well:

- A high-quality database of secondary data should be maintained and further expanded. By experience one of the primary barriers for LCA work is the provision of data of sufficient quality and the cost for these. The use of the database should therefore be free of charge;
- A registry for product specific PEFs should be established and maintained by the Commission. The registry should be open for all stakeholders and are crucial for the Commission possibility for establish and maintain of product sector benchmarks;
- A PEF scheme should be established and managed, preferably by the EU Commission;

- The uses of the UCP directive to defining false claims as environmental marketing statement which does not follow the principles of PEF should be demonstrated;
- A long-term financing should be made available – otherwise there is a risk for gradually reduction of the financial ambitions over time. Some type of legislation may be needed to assure a sufficient long term duration of effective governance of the system.

3.4.2 Licensing of the right to use the PEF and OEF instruments (Commission option 3)

The European Commission would protect the PEF and OEF as trademarks and then license its use to interested bodies.

The contribution to the circular economy by the market efforts would be very limited as no public free of charge databases and registers would be established. There would probably be several competing PEF-scheme operators, and it would depend of the rules of the license's if the PEFCR's of different schemes would be coordinated and harmonized in such a strong way that the PEF results for a product group would be fully comparable (for example, they are not for the numerous EPD programs, their product category rules (PCRs), and published environmental product declarations).

The Commission would also by this option need to take responsibility of the new standards – but would not suggest any policy activities in support of the uses in addition to the "baseline".

4. European Council recommendations regarding the Commission Circular Economy Action Plan

The Commission Circular Economy Action plan published in 2015 includes the reference to PEF/OEF as a possible measure to reinforce an effective market mechanism to move the market toward a circular economy. The Plan was discussed at the European Council (Environment) in June 2016, in November 2018 and again in October 2019.

The Council request both the member states and the Commission to take necessary measures to implement the action plan and pin-point the following aspects:

- The importance of a coherent Product Policy;
- Need for a life cycle approach in making products more sustainable;
- Need for increased focus on circularity in the Ecodesign Directive;
- Ask for identification of high priority products for a circular economy in addition to the energy related products for which an ecodesign approach may be applied;
- Note the importance of the market based mechanisms and the involvement of both B2B and B2C;
- Ask the Commission to develop and propose a methodology to ensure that environmental claims, including labels, are based on verifiable and transparent information if feasible based on the PEF methodology;
- Ask the Commission to develop guidance and incentives for the application of GPP.

Possible measures in relation to the conclusions made by the Council in 2017 are summarized in Annex 2.

5. Viewpoints regarding way forward

The European market should contribute to a circular economy and a low carbon society. To do this effectively the relative rate of development and market uptake of products and services with low environment footprint must be much higher than today. Therefor the existing instruments and not least their implementation in the market must be significantly strengthened.

Commission has identified 8 product areas and categories as high priority for circular economy measures: *Packaging, food, electrical and electronic equipment (EEE) and batteries, transport and mobility, furniture, textiles, buildings and construction products and chemical products*.

Commission should in the near future set up action plans for how to move these product areas in a sustainable direction by the use of appropriate market related measures. The first step should be the elaboration of category specific PEFCRs for the product categories and initiate the further uses of these PEFCRs in the various existing Integrated Product Policy tools, like the Ecodesign Directive (if feasible), the EU Ecolabel, the organic label, the amended EN 15804 (construction products), GPP and other.

The EU member states are increasingly directed toward a more carbon neutral and circular economy supporting the EU Circular Economy Action Plan. It is crucial in this work to focus on the design of products with the aim of higher durability, reparability, reusability and possibility to disassemble and recirculation of resources into new products. The environmental advantage of moving from the use of physical product to services should also be beard in mind.

In general, the PEF and OEF methodologies should be integrated in existing voluntary and mandatory policy instruments where relevant and technically feasible, i.e. for instruments where a life cycle approach or thinking is requested.

It should be beard in mind however, that the PEF and OEF toolbox may not stand alone as a fundament for environmental communication to the consumers. Carbon footprint labels may for example be developed based on PEF in the future for many products. Consumers will evidently compare these footprints when shopping even if the framework behind does not support such comparison. There is therefore a strong need for more general advises to the consumers regarding relative ranking of footprints of product categories – ex: "If you chose to eat red meat for your dinner knowing that meat is in the upper end of carbon footprints – ask for meat better than the average PEF benchmark".

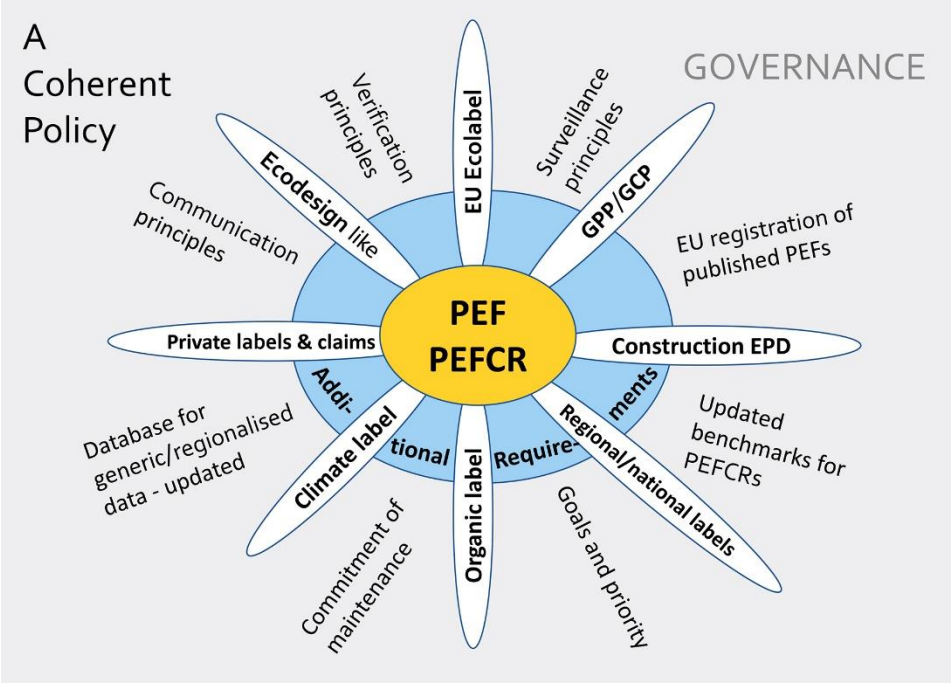
In the following possible measures are discussed in the form of 6 headlines.

5.1 The Greening of Products

The Ecolabel Regulation, Energy label, Ecodesign Directive, the organic label, the construction regulation (based on the amended EN 15804) and to some extend also the GPP Directive all include criteria which should be complied with as a provision for labelling/passing/purchase. They all to some extend refer to impacts in a life cycle perspective (or should be) and it is therefore obvious that they should all be based on the same PEF method fundament – or PEFCR if established for the product category in question. On top of the basic PEF assessment – the hot-spot analysis – additional requirements should be added as appropriate – as related to the scope of the various legislations and tools.

Applying the same PEF fundament would prevent that different legislations having the same overall objective – the greening of products – would lead to different conclusions regarding basic environmental impacts. A harmonized fundament may also ease the reuse of data and information to the benefit for both authorities and business.

Figure 2: The elements of a coherent product policy all anchored in PEF and supplemented as appropriate with additional requirements



Note: Dedicated and legislative supported governance should form the fundament for the coherent policy. See text for further explanation.

5.1.1 The EU Ecolabel

The Ecolabel has been well established in many EU member countries and should be further strengthened as a label for "best-in-class" products. The possible synergy between the label and PEF is obvious. The following uses of PEF in ecolabel criteria setting should be considered:

- The preliminary study – the life cycle based hot-spot analysis – should apply the PEFCR for the product category if available. If not available a PEFCR should be developed as part of the process;

- For the criteria setting for *environment hot-spots* (the technical report) the benchmark procedure of PEF should be applied as far as possible to fulfill the requirement of the regulation: "Criteria setting shall correspond indicatively to the best 10–20 % of the products available on the Community market in terms of environmental performance at the moment of their adoption". Defining the benchmark requires that more than 50% of the relevant market suppliers are represented – or that sufficient documentation may be derived from an EU register;
- For aspects not included in PEF, e.g. social and ethical parameters – additional criteria should as far as possible be elaborated (if relevant) based on the same principles as laid down in the PEF standard;
- Relevant hazardous substances for the product category (CMR substances and the like) should also be included in criteria setting;
- The verification procedure should be considered to follow the same principles as for PEF – nothing more and nothing less – to facilitate mutual recognition of verifications for various purposes, to reduce cost for business and for preventing a future unfruitful discussion of level of credibility;
- When a PEFCR has been updated for the use in another regulation, also the eco-label criteria should be considered for revision;
- The output data regarding the documentation of fulfillment of the criteria document – a PEF study – should be registered at a central European register.

5.1.2 The EU Energy label

- PEFCR should be elaborated according to the Commission guideline if not already available;
- An "A" label or better should not be awarded to products in the low end of PEF based on the benchmarks for the product category;
- A shift to a more energy efficient class should not lead to a significant higher environmental load based on the benchmark for the product category;
- The energy label should follow the requirements for a ISO type II label;
- Principles of verification should be in accordance with the overall principles for PEF;

- All output data for achieving the label should be collected in an overall Commission register.

5.1.3 *Ecodesign Directive*

- The possibilities of extending the scope of new Ecodesign Regulations within the framework of the existing directive should be analyzed and – if necessary –the scope of the directive itself should be considered to be adjusted to cover more broadly life cycle impact categories of energy-related products;
- The focus on circular economy aspects should be strengthened to cover aspects like reparability, durability (e.g. prolonged guarantee periods for pushing the design toward longer life time of the products), reusability, recyclability etc.;
- The PEF method should be included as a fundamental LCA hot-spot analysis in the EcoReport tool and MEErP methodology and appropriate specific guidance for other aspects than energy related areas, e.g. recourse aspects should be elaborated;
- The necessary harmonization should include the use of similar functional units;
- The normalization and weighting factors should be decided by the Commission and be valid for both the Ecodesign Directive and PEF;
- Work plan for the development of relevant PEFCRs and MEErPs should be coordinated;
- The database applied for the Directive should be merged with a future database regarding generic LCA data – and also the products registered under the Directive should merge with a product register for PEFs;
- Improved synergy should be established between Ecodesign and the RoHS Directive and the WEEE Directive with regard to waste handling of EEE products including the use of Extended Producer Responsibility based criteria (EPR).

5.1.4 *Organic label*

It may be argued that the organic label has a special position in the market and that the label is not so much based on general environment concern and more based on ethical thinking than environmental scientific evidence.

But as long as the regulation apply a "best environmental practice" scope – the label should also document this quality in a LCA perspective:

- Relevant PEFCRs (and OEFSR) should be applied as a fundament for assessment of both organic and conventional productions – e.g. meat, dairy, wine etc. The PEFCR criteria may then be supplemented by the special requirements for the related organic production;
- The benchmark for the product category should combine both organic and conventional productions – and the single product PEF – organic or conventional – should disclose the products position on the benchmark scale;
- Verification principles should at least comprise the same issues as for relevant PEFCRs;
- When updating relevant criteria for organic labels relevant PEFCRs and OEFSR should be considered in the update.

5.1.5 Construction products

Documentation of environmental properties of construction products is very important bearing in mind the share of resources and materials applied in the building sector. It is therefore very important that EU Commission and CEN have taken the first step in harmonizing the requirements in the EN 15804 and the new PEF method – a process that should be speeded up to achieve a full harmonization.

Fully PEF harmonized EPDs will lead to product declarations, which may both be used in the construction sector, for building certification schemes, the Commission Level initiative (a voluntary reporting framework to improve the sustainability of buildings), but also be the basis for further uses in other policies based on PEF, e.g. the EU Ecolabel, GPP:

- As an obligatory (minimum) requirement, EN 15804 and PEF should apply the same secondary data. Therefore a compliant EN 15804 and PEF secondary database should be established. This would significantly increase comparability of information included in PEFs and EPDs;

- EN 15804 and PEF should be further aligned by extending the number of impact categories (to the number of PEF) to be reported also by EPD and modifying the way "end of life" stage is dealt with.

5.1.6 Private labelling schemes and claims

By the use of the new PEF toolbox also other private or public instruments may be developed to make "best-in-class" products and services visible in the market.

Presently the EU Ecolabel and regional (the Swan) and national (Blaue Engel) labels supported by authorities have been the primary instruments in the EU – which on a voluntary basis may be applied for the producers fulfilling the product specific minimum criteria for the labels.

Also for future private labels the uses of PEF toolbox may form a new fundament to be used for the basic part of potential criteria development – the life cycle hot-spot analysis – and topped-up with other concerns than environment. Also the benchmark methodology demonstrated in the pilot phase may be applied as a quantitative measure in private labels of being among the best "10–20%" (or 20–30%) of the market.

Commission has stated that labels and claims fulfilling the requirements of the PEF/PEFCR toolbox (including independent verification) may communicate their environmental PEF based qualities with the "moral" support from the Commission. In the future private labels and claims may appear having the same support as the existing public approved labels. For these new Commission supported labels and claims, the Commission should:

- provide a sufficient surveillance over time of the compliance of the labels and claims with the PEF toolbox requirements;
- provide a mechanism for the labelled and claimed products to be registered in a Commission database;
- inform the member states of labels and claims, which have been checked and approved by the Commission;
- collect information on new compliant communications and analyse the need for a more stringent communication framework.

5.2 Benchmarking

A benchmark is defined as "the average environmental performance of the representative product sold in the EU market".[24] The representative product may be virtual (i.e. based on statistical analysis of a representative part) or an existing product. According to the guidance document, "the benchmark shall be provided in the PEFCR both as characterised, normalised and weighted results for each of the EF impact categories (not only the most relevant ones, and climate change sub-categories if relevant) and as a single score based on the weighting factors provided".

Based on the results from the screening study of the representative product, the benchmark as part of 5 performance classes (A–E) may be defined. The procedure is first to define the benchmark (the C class) and then the performance classes (A–E) (best and worst in class) are developed in a stepwise procedure. Only the estimation of benchmark "C" has been mandatory for the PEFCR pilots.

By this system, it may be possible for the producer to document claims of *relative* environmental quality of the product compared to similar products. Opposite the pass criteria for the EU Ecolabel, the benchmark system is therefore a relative rating system for otherwise comparable products.

The benchmarks for the around 20 pilot PEFCRs are valid in the understanding, that more than 50% of the respective producers have been represented in defining the "average" and "representative product".

The benchmark system may form an important new mechanism in the future for involving the marked mechanisms of supply and demand for a much bigger share of the marked than presently covered by the type 1 ecolabels and may also give a better possibility of the public purchase to signalize purchase of products "better than the benchmark".

A voluntary use of PEF will presumably in the best of worlds lead to many products documented to be better than the benchmark and none at all communicating a worse performance. It may therefore be difficult by the collecting of PEF documentation to estimate "worst in class" (D and E performance classes) (possible uses of ecodesign principles) and also in the future to update the benchmark to cover "average performance":

[24] Product Environmental Footprint Category Rules Guidance, Version 6.3 – May 2018 (PEFCR_guidance_v6.3-2.pdf).

- Mandatory use of PEF should therefore be considered for high priority product categories.

It may also be possible to define what is "green" and what is not by the PEF in combination with the benchmark:

- "Green" may be defined as products better than the benchmark judged by the performance of the product category hotspots;
- The UCP directive should be reinforced to challenge the use of "green" and similar claims in the marked based on the PEFCRs and the benchmark

The EU Ecolabel criteria are intended to target the environmental performance of the best 10–20% of the marketed products within the category. The PEFCR pilots have, however, not been requested to estimate the "10–20% best in class" average product:

- Commission should elaborate a mechanism to estimate the "10–20% based on the average benchmark" for at least the hotspot parameters;
- Commission should as frequent as needed – in cooperation with the suppliers – update the benchmarks

5.3 Supply and demand

Driving the market toward an increase in supply and demand of green goods will be governed by the fundamental market mechanisms: "If there is a significant market – there will also be a supply".

The most important driver will therefore be to promote a request for green products by all the available means: Clear policy objectives, dedicated effort by public (and private) institutions "to lead the way", measures to reduce the cost of introducing green goods on the market, apply "polluter pay" principles in tax systems and an effective monitoring of the market.

As a precondition for a future successful market implementation of PEF and OEF – whether mandatory or voluntary – is that EU member countries recognize any

information or claims based on PEF and OEF methodologies as valid for national schemes as well as for private labels and claims as long as independent verified and reported to an EU register.

On the other hand, whenever a Member State intends to introduce a voluntary or mandatory scheme or requirement related to the measurement, verification, reporting, benchmarking, and communication of the environmental performance of products and organisations, it should apply the PEF and OEF methodologies respectively as appropriate.

Business and private organisations should be requested to use PEF and OEF as well in their internal environmental work, in their dialog with suppliers and customers or when introducing private environmental labels or environmental claims. For business, a horizontal use of the same fundamental requirements (data, information) would ease environmental work substantial, meaning reduced costs and possibility of delivering credible data.

The financial community (investors, insurers, banks) should be invited to use environmental performance information based on the application of OEF and/or OEFSRs in assessing environmental risks for their own internal work and request environmental (and climate impact) information based on PEF and OEF from their clients/customers.

Experiences from the voluntary uses of PEF and OEF should be shared among European stakeholders for inspiration via the EU Commission informal IPP/SCP advisory group.

A provision for activating the market stakeholders – consumers, suppliers and public institutions etc. – is the availability of easy going guidelines and information, available at the time of needed uses. The internet should be the preferable carrier of the information and guidelines. It is important that especially the SME's are shown the way by relevant examples of use of PEF/OEF and PEFCR/OEFSR.

Many of the companies participating in the PEFCR pilots have expressed "that the method is a useful first step to inspiring sustainable product and business strategies (eco-design/eco-innovation). In this sense, some of the pilots have already suggested they will continue using EF for their own improvement processes, regardless of the final decisions by the EU on policy applications".[25] The internal uses of PEF and OEF will

[25] Review report of the Environmental Footprint Pilot phase JUNE 2017. 017_peer_rev_finrep.pdf

presumably involve also important parts of the supply chain of the companies. The step by step uses of PEF will therefore spread in the market slowly and depend on the dedication of market front-runners within the various product categories.

The supply of "green" products should be supported by targeted research funding for projects that engage companies and build their capacity of use of PEF/PEFCR, including the introduction of relevant eco-design tools as well as of sustainable materials.

The supply and demand may be speeded up by the use of the public procurement. The experiences of using the GPP – irrespective of strength of regulation – has in practice not been very flattering, as cost considerations and habit have been a stronger driver than environmental considerations. There is therefore a need for a substantial lift in the political and financial priority, should the GPP mechanism be made effective.

The following measures are suggested:

- The GPP product criteria should also in future as far as possible be based on the EU Ecolabel criteria and topped up with other use/purchase related aspects as Total costs of Ownership (TCO) and Life Cycle Costs (LCC);
- As a driver for the "next-to-best" in class, the criteria may be less stringent for example to purchase products being among the best 30–50% of the market regarding their environmental footprint. A campaign "buy better than the benchmark" should be considered category by category when benchmarks are ready. The supplier should be requested to document the position related to the benchmark by the use of the "enforced" PEFCR;
- The Public and private (secondary) professional purchase should be addressed in a combination and voluntary agreements with private associations should be negotiated for speeding up the green purchase.

For the private sector a combination of OEF/PEF and PEFCR requirement and the private corporation's activities regarding CSR and Global Compact should be facilitated.

5.4 Governance & market surveillance

It is crucial that the Commission and the member countries are committed to allocate sufficient resources for the long-term maintenance and gradual update of the PEF and OEF toolbox. A long-term commitment will presumably require a legislation regarding objectives and means (see 5.5.).

The following aspects may be relevant:

- Mechanism for *regular updating of PEF and OEF* involving the European LCA expert community and stakeholders in an appropriate process;
- *Involve member state authorities* in the discussion and decision making regarding issues like normalization and weighting for high priority product categories;
- The present *database for secondary data* to be used for elaboration of PEFCR based product specific PEFs should be further expanded and maintained. Search for datasets should be free of charge;
- *A register for Product PEFs* which are intended to be applied in market communication (B2B or B2C) should be established. The proper registration should be documented by e.g. a registration number, which should be visible in the materials applied for the market communication. A procedure for updating of PEFs should be established. There is presently a register for energy labeled products which may be applied for inspiration. For this register manufacturers have to upload information about their products before placing the products on the market. The data base is accessible for the public to search for energy labels and product information sheets. The same accessibility should also apply for PEF documentation;
- A procedure for *update of benchmarks* (and performance classes) should be established based on information in the Product PEF database and information from the relevant suppliers;
- The elaborated and tested *verification protocol* should be further developed and as far as possible implemented in all relevant schemes: the ecolabel, the energy label and PEFs applied in marketing;
- *Establishment of advisory Product Panels of stakeholders* for each of the high priority product categories should be considered. Such panels may possibly be

advisory to the Commission regarding update of PEFCR, benchmarks and performance classes, ecolabel criteria, cut off criteria for ecodesign like regulation, proposing criteria for GPP (and green corporate purchase), general advisory regarding how to promote the green products within the category on the market etc.;

- *Establishment of an authority committee* for assisting Commission in decisions of political importance should be considered (identification of priority product areas, weighting and normalization where an easy decision is not possible etc).

The surveillance of the uses of PEF and OEF in the market, including the monitoring of the uses of ecolabels and energy label should be strengthened. The basis for this activity is the UCP directive and the priority and resources allocated in member countries for authority market surveillance.

If consumer authorities are directed to apply the PEF via the UCP directive the very high number of private claims may be significantly reduced only leaving those who base their communication on a PEF fundament including 3rd party validation (as required by the PEF methodology).

The following aspects should be considered:

- The Guidance for UCP should be analysed and updated if needed to include the reference to PEF and PEFCR as a new credible, transparent and verifiable European "standard";
- The Commission should guide the national authorities how to proceed by using the PEF "standards" and at the first opportunity collect examples of the uses of PEF in relation to UCP directive;
- National (consumer) authorities should elaborate guidelines for how to apply UCP in relation to environmental claims in line with the guideline regarding ecological cosmetic products.

5.5 A coherent policy

A new EU legal framework for sustainable products may replace the European Commission Recommendation 2013/179/EU and may consolidate existing and possible new product-related policy instruments, which are based on PEF (and OEF).

An EU overarching legal framework may among others address the following aspects:

- Generate stronger horizontal consistency of the assessment of the environmental *profile* of products by the use of PEF/PEFCR. This profile should be applied as the starting point – the hot-spot analysis – for all product oriented tools: EU Ecolabel, Energy label, Ecodesign a.o;
- Introduce a common horizontal methodology for the assessment of environmental *performance* of products. This would include the identification of the highest, the average as well as the lowest environmental impacts for priority impact categories. The basis for the assessment would be environmental performance benchmarks for each (environmental priority) product group and their hot-spots. The lowest performance to be applied for setting minimum market access requirements and the best performance to be applied for setting EU Ecolabel criteria;
- Oblige the member states to accept any market communication regarding products environmental footprint provided it is documented, that it fulfils the requirements of the PEF toolbox;
- Establish a European register for PEFs for specific products including all output data. Based on the register, Commission should update and publish product category benchmarks at a regular basis. The Commission should also at a regular basis screen the registered PEFs for possible need for updating of the PEFCRs. The register should be open for all stakeholders regarding search for information;
- Commitment to keep the PEF and PEFCRs updated and involve both stakeholders and LCA experts in the work, to support further development related specially to impact categories not yet sufficiently covered and as far as possible support a high-quality data base for secondary data;

- Elaborate common principles regarding conformity assessments, independent verification and market surveillance, to make sure that the requirements are properly implemented and to avoid free riding and false claims;
- A structured PEF communication framework should be established (b2c and b2b) to limit risk of false claims, increase credibility and to reduce risk of undermining the EU Ecolabel;
- Set a road map including a time table for gradually covering all priority products based on their overall environmental performance and focus on the most important environmental impacts relevant for each product category;
- Set a road map and a time table for the implementation of the legislation, which may allow for sufficient time for the supply chain to adapt to the new requirements.

Resumé

EU Kommissionen udsendte en omfattende strategi for cirkulær økonomi i 2015. Siden da har det Europæiske Råd (miljø) gentagne gange diskuteret denne strategi og opfordret Kommissionen til at etablere mekanismer, der effektivt kan få markedet til at bidrage til en cirkulær økonomi, herunder reducere produkternes klimapåvirkning. Det metodiske grundlag for en sådan indsats er nu endeligt etableret og der tilbagestår for den nye Kommission at demonstrere, hvordan denne værktøjskasse kan anvendes i en sammenhængende og effektiv europæisk produkt politik.

Værktøjskassen er resultatet af næsten 15 års arbejde og omfatter harmoniserede vejledninger for livscyklusbaserede vurderinger af det miljømæssige fodaftryk af produktkategorier (PEFCR) og organisationssektorer (OEFSR) – og også vejledninger for 3. Parts verifikation, benchmark og kommunikation. Vejledningerne er blevet afprøvet af mere end 20 pilotprojekter, der hver repræsenterer mere end halvdelen af de respektive (europæiske) produktionskæder indenfor f.eks. mejeriprodukter, sko og tekstiler. Vejledningerne bygger ovenpå livscyklusbaserede standarder for produkter (PEF) og organisationer (OEF) publiceret i Official Journal i 2013.

Med brugen af den udviklede værktøjskasse, er det nu for første gang muligt entydigt at definere og troværdigt at kommunikere hvad der er et "grønt produkt" og hvad der ikke er.

Nærværende rapport diskuterer mulige veje mht. til anvendelse af værktøjskassen til at etablere og implementere en sammenhængende ny europæisk produkt politik, der har til formål at reducere især produkters fremtidige miljømæssige (og klima) fodaftryk.

Annex 1: Policy strategies and agreements related to the greening of the market

UN conference on sustainable development (Rio +20)

At the United Nations Conference on Sustainable Development (Rio+20) held in 2012, the international community recognised that "fundamental changes in the way societies produce and consume are indispensable for achieving sustainable development globally". Nearly two-thirds of the world's ecosystems have been classified as "in decline", by the UN. Biodiversity is lost at a rate estimated to be 100 times higher than natural extinction rate, and the risks and trends related to climate change are well documented. The OECD has warned that the continued degradation and erosion of "natural capital" is bringing about irreversible changes that could endanger two centuries of rising living standards. The UN conference therefore called for immediate action.

UN 2030 Agenda for Sustainable development

In September 2015, the United Nations (UN) adopted the 2030 Agenda for Sustainable development, including 17 Sustainable Development Goals (SDGs) and a total of 169 detailed targets under the SDGs. The member countries of the UN, including the Nordic countries, have committed to implementing the 2030 Agenda nationally and achieving the goals and targets.

In 2017 the Nordic Council of Ministers adopted the *Generation 2030* programme to support the Nordic countries in the implementation of the 2030 Agenda in the Nordic region. The programme builds on a strong tradition of Nordic collaboration on sustainable development (SD), with the first Nordic SD strategy adopted in 2001. For

the period 2017 – 2020, Generation 2030 places particular emphasis on achieving sustainable consumption and production patterns (SDG 12). This has been identified as one of the most challenging Sustainable Development Goals for the Nordic region.

In a report published in august 2018[26] it is concluded, that the Nordics, despite ambitious policies and well-functioning organisations and systems, "globally stand out as over-consumers of natural resources (12.2) and substantial producers of wastes of all kinds (12.5) although they are good at collecting, responsibly treating and recycling the wastes they do produce".

A main reason for this situation is – according to the report – "that the governments of the Nordics have not been able to effectively address the drivers of unsustainable consumption and production patterns. Examples of such drivers are: insufficient commitment, product prices not reflecting true resource, environmental and social costs, limited product life spans, slow shifts towards greener business models, limited incentives for waste prevention via reuse and other means, and the absence of sustainable alternatives to high impacting consumption patterns. The Nordics demonstrate relatively good achievements in terms of policies and strategies (12.1), reducing food waste (12.3), sustainable business practices (12.6), sustainable public procurement (12.7), information and awareness (12.8) and SCP support to developing countries (12.A) – but the more genuine confrontation with the galloping consumption patterns has yet to be taken. It is characteristic that many relevant initiatives promoting sustainable consumption and production (SCP) are about changed consumption – and not reduced consumption – continuing a path that has demonstrated its unsustainability".

In short, we need to address both issues: reducing *and* "greening" consumption part.

[26] Sustainable Consumption and Production. An analysis of Nordic progress towards SDG12, and the way ahead Bjørn Bauer, David Watson and Anja Charlotte Gylling (PlanMiljø) NMR 2018.

The Paris Climate agreements[27]

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC), dealing with greenhouse-gas-emissions mitigation, adaptation, and finance, starting in the year 2020. The Paris Agreement's long-term goal is to keep the increase in global average temperature below 2 °C above pre-industrial levels; and to limit the increase to 1.5 °C, since this would substantially reduce the risks and effects of climate change.

The contributions that each individual country should make in order to achieve the worldwide goal are determined by all countries individually and called "nationally determined contributions" (NDCs). The level of NDCs set by each country will set that country's targets. However the "contributions" themselves are not legislatively binding, as they lack the specificity, normative character, or obligatory language necessary to create binding norms. Furthermore, there is no mechanism to force a country to set a target in their NDC by a specific date, and no enforcement if a set target is not met.

There are so far, no suggestions on how to involve the market mechanisms in the agreement. Article 12 mention the need for public engagement: "Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, *public awareness, public participation and public access to information*, recognizing the importance of these steps with respect to enhancing actions under this Agreement".

The process of translating the Paris Agreement into national agendas and implementation has started. In the Nordic countries, there has been a suggestion to apply a climate label on products to guide consumers in selecting "climate friendly".

Nordic Product-Oriented Environmental Strategy

A Joint contribution to sustainable development from the environment-, industry- and consumer policy sectors in the Nordic countries. 2 February 2001:

[27] Chapter XXVII´, Environment, 7. d Paris Agreement Paris, 12 December 2015.

- Product-oriented environmental considerations should be included in the scientific, legal and economic courses offered by universities in the Nordic countries. The countries should work together to incorporate relevant knowledge in education and research;
- Information for consumers should be specific, correctly presented, appropriate and aimed at the right target groups and situations. The Nordic Swan and the EU Flower are excellent information systems for consumers, and, to some extent, other purchasers as well. Environmental product declarations and other technical aids, such as public accessible databases, should be developed, particularly for trade and industry. As far as possible, environmental information systems should be developed by way of international cooperation to facilitate international trade;
- Economic instrument should be analysed to identify ways of supporting the market for environmentally sound/benign goods and services. For example, shifting the tax burden in favour of environmental interests may be an effective way of integrating environmental costs in product prices. To do this effectively withou8t reducing the competitiveness of trade and industry will require international, at least Nordic, cooperation to avoid undesirable consequences, especially between countries;
- A general extended producer or manufacturer responsibility for products, including responsibility for end-of-life products, will offer good potential for reducing total environmental impact. However, the specific regulations must be drafted jointly by way of international cooperation and dialogue with trade and industry;
- Regulation of the use of chemicals is high on the international agenda. Nordic cooperation on products may help to reduce use of hazardous substances, for example by way of ecolabelling and other information tools aimed at all market players and by exchanging information about methods and tools;
- In Denmark cooperation has been initiated between those involved in the production chain in the form of "product panels" for four industries (product categories). The idea is to develop a market environmentally sound/benign products. Results indicate that this approach is worth emulating in other Nordic countries;
- Small and medium-sized companies are social-economically important. They may need support and incentives of various kinds to help them improve their

environmental performance. This may take the form of research, development and demonstration programmes or advice and services. Nordic cooperation on designing and evaluating these measures can be educational as well as cost-effective;

- Joint Nordic efforts to support and facilitate development of a joint IPP in the EU may speed up the results that form objectives for the Nordic and national projects on developing a product-oriented environmental strategy;
- Incorporation environmental considerations when formulating product standards is important, since these greatly influence the future environmental characteristics of the products. Comprehensive standardisation projects are under way within CEN/CENELEC. Public authorities in the individual Nordic countries have scarcely sufficient resources to cover this extensive work, but if work is allocated and coordinated, Nordic cooperation may results in much greater influence;
- It is important to establish and develop environmental management projects in the private and public sectors. Purchasing procurement and decisions should also involve environmental values. Most government agencies in Sweden are required to introduce environmental management systems and, as a result, environmental considerations will be integrated in the procurements. Purchasers in all countries need guidance on environmental friendly purchasing. The work being done by the Swedish delegation for ecological (organic?) procurement is a step in the right direction, as are the Danish environmental guidelines for a large number of product categories. Nordic cooperation on formulation of guidelines and tools will help to reduce the use of resources and promote free movement of goods and services;
- Nordic cooperation on disposal systems for end-of-life products which make it simple and worthwhile for consumers to involve themselves in recycling is needed. Information for the public about end-of-life products is also in need for improvement;
- There are potential environmental gains and new business opportunities in focusing on the services (functions) for which products are intended. A functional approach should be further developed in an environmental and system perspective. Dialog between public authorities, consumers and trade and industry, as well as information exchange within the Nordic region, will make this easier.

Information and communication technology creates opportunities that may help to change patterns of consumption and develop a new life style. However, new technology will not necessarily lead to sustainable development. A research and development program has been started in Finland with a view to making better use of the potential offered by information and communication technology to create sustainable development. Part of this program is product-oriented and Nordic cooperation would be both educational and beneficial.

EU Commission Action Plan for Circular Economy

The European Commission adopted in January 2015 an *Action Plan for the Circular Economy*. The plan covers 2015–2019, and contains measures covering the whole life cycle: from production and consumption to waste management and the market for secondary raw materials. So far activities have focused on waste management (as the plan contained new legislation on waste).

An important measure is to apply the principles under the Ecodesign Directive. The objective of the Directive is to improve the efficiency and energy performance of energy consuming products. It is however already possible to day to implement "other requirements" under the umbrella of the Directive, which have increasingly been focused in the Ecodesign working plans, e.g. resource efficiency, reparability, durability, upgradability, recyclability and the content of recycled materials. So far requirements related to the use phase has been dominating. But step by step other aspects will become important when the energy efficiency of the products become gradual higher, e.g. resource efficiency. In practice, all life cycle impact categories may be included as long as the requirements are quantifiable. This has up to now been an expressed limit for the directive but with PEF this may change. The Commission will analyse these issues on a product by product basis in new working plans and reviews, taking into account the specificities and challenges of different products (such as innovation cycles) and in close cooperation with relevant stakeholders.

The Directive is, however limited to energy consuming products and other products like food ingredients, textiles etc. are outside the scope.

The European Council (Environment) discussed the Action Plan for Circular Economy at its meeting in June 2016. The Council support the approach in the Action Plan to address the entire life cycle of products and stresses that such an integrated, cross-sectoral approach is essential to effectively "close the loop" and achieve a transition to a Circular Economy (6). The Council also noted the crucial role of consumers in the transition to a Circular Economy and stresses that access to reliable, timely and understandable information regarding the environmental characteristics of products and services can help make informed choices (10); The Council therefore called upon the Commission to develop and propose a methodology to ensure that environmental claims, including labels, are based on verifiable and transparent information, taking into account specific conditions in Member States and the lessons learnt from the European testing of PEF and OEF.[28]

The Council again discussed circular economy at its meeting in November 2017.[29] The Council asked the Commission to consider using existing mechanisms and if necessary establish new ones for identification and providing information of sustainable performance of products to be used by consumers and along the supply chain and to build on the experiences from the PEF and OEF project for concrete measures (11).

Again at it's meeting in June 2019 the Council requested the Commission "to assess the possible application of ecodesign principles beyond energy-related products and put forward a legislative proposal, as appropriate" and also requested the Commission "to explore whether it (PEF) can be used as one of the methodologies in developing criteria for product policy measures, e.g. the EU Ecolabel, Ecodesign and EU Green Public Procurement; WELCOMES all initiatives to support the communication of environmental impacts based on the Environmental Footprint pilot and in time eventually the establishment of a mandatory scheme for environmental claims".

Commission has in March 2019 published an analysis of the existing measures and policies contributing to a Circular Economy.[30] The analysis explores to what extent existing EU policies and other measures contribute to the transition to a circular

[28] https://www.consilium.europa.eu/en/press/press-releases/2016/06/20/envi-conclusions-circular-economy/

[29] http://data.consilium.europa.eu/doc/document/ST-15811-2017-INIT/en/pdf

[30] Commission Staff Working Document Sustainable Products in a Circular Economy – Towards an EU Product Policy Framework contributing to the Circular Economy {SWD(2019) 92 final}.

economy, and where there is potential for a stronger contribution – for example through more consistent implementation across different policy instruments, better synergies between policy interventions or better coverage of products by policy instruments.

Nordic countries support of IPP and PEF

The Nordic countries led the EU discussions in start of the century together with The Netherlands, Belgium and UK. NMR issued "A proposal for a common Nordic IPP 1999 (Tema Nord 2000:505) and a cross sector Nordic "action plan" in 2001.[31] Both documents were shared with the other members of EU and the Commission and inspired the Commission in their preparation of an IPP green paper (2003).

The action plan stated the following objectives:

> "The main purpose of a product-oriented environmental strategy is to encourage the development of markets for environmentally compatible products. Key concepts involved in a joint policy are integration, a life-cycle approach and market-based solution."

The following strategic objectives for the product-oriented environmental strategy were:

- to integrate environmental know-how in the product chain, product development, higher education and information;
- to develop infrastructures and framework and create incentives for businesses, other activities and consumers to make choices favouring environmentally compatible products;
- to contribute to growth in the international market for environmentally compatible products;

[31] Draft Nordic Product-oriented Environmental Strategy – a joint contribution to sustainable development from the environment-, industrial- and consumer policy sectors in the Nordic countries (2nd February 2001).

- to create frameworks enabling and encouraging the public sector to take environmental considerations into account in their purchasing and other activities;
- to encourage innovation with a view to reducing the total burden society places on the environment and by use of resources.

Based on the strategic objectives a number of specific actions were defined.

Recently – on behalf of the Nordic Council of Ministers for the Environment – the Nordic Committee of Senior Officials for the environment in a letter to the EU-Commission (13 December 2017) confirmed that NMR-M supports the further development and implementation of Environmental Footprint (EF) methods to enhance credible market communication of environmental footprint of products and assured the Commission of the Nordic countries active contribution to the further development and implementation of EF on the European market in cooperation with the EU Commission and other relevant stakeholders:

- Strongly support the existing EU Ecolabel. However, the present lack of a common European methodology for calculating the environmental footprint of products is a serious barrier for the supply and demand for green products especially in areas not covered by the EU eco-label;
- A common methodology is a key-factor for achieving a future fair competition regarding environmental performance on the European single market. The present situation, with many often non-transparent systems for green labels and claims, is a major barrier for both consumers and professional purchaser's possibility for making informed choices. A common methodology is therefore important to establish trust in the market and thus crucial in our strive for more sustainable consumption and production patterns and the transition to a circular economy;
- To have a real impact a common and harmonized method must be trusted as well as robust, cost-effective to use and dynamic to ensure continuous environmental improvements;
- Especially emphasizing the need for high credibility as a precondition for both consumers and professional purchaser's confidence in EF. However, we

encourage the Commission to establish a balance between high credibility to cost to facilitate the uptake by SMEs;

- Support the establishment of a transparent and credible product benchmarking system as a precondition for the possibility important for both enabling consumers and professionals to purchase products based on their preferences concerning balance of environmental footprint, quality and cost;
- Stress the need for harmonizing relevant existing legislations to apply the same methodological fundament for environmental assessment. But we encourage the Commission to manage this in a way, that the advantages of the existing labels and schemes, e.g. the ecolabels and EMAS, may strengthen the overall implementation of EF. For example, the EU Ecolabel (and the Nordic Ecolabel) should continue to be applied to signalize "best in class" as a voluntary attribute to a possible PEF communication vehicle;
- Aware of the shortcomings of applying the methods in their current state, as there is no full agreement in the international community regarding calculation of environmental impacts, data etc. But confident; that the methods can, by a multi-stakeholder dialog, gradually be improved to meet relevant requirements and help us reach in facilitate the transition to resource efficiency/circular economy. Should we await a perfect method before implementation, we would seriously delay our effort to reduce environmental impact from consumption and production.

The NEF group accepted in 2016 a request from the EU Commission to contribute to the planning of a communication session at the Commission stakeholder conference marking the end of the Environmental Footprint (EF) pilot project (April 2018). As part of the planning the NEF group has organized the elaboration of a discussion paper regarding "Future environmental footprint communication" which was presented at the conference (www.nordic-pef.org). Part of the discussion paper is the formulation of a vision for the future uses of PEF in the understanding that without a clear objective it is not possible to formulate a strategy for communication.

Since 2015 the NEF-group has also organised a number of Nordic workshops and conferences for stakeholders in order to spread knowledge about the new methodology to Nordic authorities as well as to companies and other stakeholders.

Annex 2: Product policy and Commission Circular Economy Action Plan

The Commission "Action Plan for the Circular Economy" was published in 2015. Possible measures in support of the conclusions made by the Environment European Council in 2016 are briefly highlighted below as related to the "Viewpoints regarding way forward" (chapter 5).

Table 1: Possible measures in respondance of the European Council conclusions at its meeting in 2016. Number in brackets refer to the section in the Council Conclusions

Product Policy related Circular Economy Council conclusions*	Possible National and EU measures related to especially uses of PEF in Product policy framework
ENCOURAGES Member States to establish and adopt measures and/or strategies to complement and contribute to the EU Action Plan (2)	The Member countries should contribute to the further development and implementation of PEF in relevant product areas in a cooperation with the Commission and market stakeholders
Underlines the importance of a coherent product policy frame-work at the EU level, in line with the 7th Environmental Action Program calling for action before 2020. Strongly encourages the Commission to ensure coherence, enhancement and effectiveness of existing EU instruments relevant for Product Policy (7)	A new EU legal framework for "green" products should replace and consolidate the existing product-related policy instruments included in the 2008 SCP/SIP Action Plan The PEF/PEFCR methodology, benchmarking and verification principles should be implemented in all relevant EU instruments, including eco-label, energy-label, Ecodesign a.o. The Commission should establish a mechanism to sustain the uses in the market of PEF/PEFCR, including the timely update of methods and benchmarks, the availability of standardized low cost independent verification, an open register for product PEFs, the availability of high quality secondary data for elaboration of PEFs. The Commission should also establish a surveillance of the proper uses of PEF in the market

Product Policy related Circular Economy Council conclusions*	Possible National and EU measures related to especially uses of PEF in Product policy framework
Stresses the need to ensure that products are designed and produced more sustainable, taking into account their full life cycle and minimizing negative impact on the environment and on human health. Urges the Commission to include appropriate measures to improve the durability, reparability, reusability, possibilities to use recycled materials, upgradability and recyclability of products in the EU Ecodesign regulations and other regulations as appropriate, before 2020. Invites Commission to evaluate before end of 2018 for which product groups, other that energy related, it would be possible to take better into account resource efficiency and impact to environment and human health building on experiences from the Ecodesign directive (8)	The strength of the Ecodesign directive in combination with the new harmonized PEF/PEFCR methodology should be applied for setting minimum requirements to products for energy related as well as other impact categories of high importance for the product in question. PEF standardize the type and format of data to be collected and the algorithms to be applied for the various impact categories - easing the environmental work of companies. The strength of PEF/PEFCR methodology is thus comparable with the present energy assessment in its stringency, transparency, reporting and validation principles The PEF methodology should be applied in all relevant environmental legislations.
Noting the crucial role of consumers in the transition to a Circular Economy. Emphasizes the importance of raising awareness and promoting appropriate market based mechanisms… in order to boost sustainable behavior, consumption and production, both in B2C and B2B markets. Calls upon the Commission to develop and propose a methodology to ensure that environmental claims, including labels, are based on verifiable and transparent information, taking into account the lesson learned from the ongoing European pilots on the environmental footprint and Environmental Technology Verification. (10)	A structured PEF communication framework should be established (b2c and b2b) to guide the uses of benchmarks, to create a level playing field in market communication, to limit risk of false claims, increase credibility and to reduce risk of undermining the EU eco-label The Methodology of PEF and OEF has been published in 2013. A method for elaboration of relative simple product category specifications has been developed as well – together with supporting documents regarding verification – and tested by more than 20 consortia representing each more than 50% of the European market. The reliability, verifiability, robustness, transparency and usability of the methods have thus been demonstrated. PEF/PEFCR and benchmarking methodology should be implemented as a requirement for ecolabel regulation as well as other relevant legislations.
Underlines the importance of market based instruments where appropriate to create economic incentives that stimulate the sustainable use of resources (26).	The establishment of a transparent and credible product category benchmarking and performance classes methodology is important for the future market communication of PEFs and crucial for the possibility to apply the Ecodesign directive in a transparent and credible way.
REQUESTS the Commission to develop guidance and incentives for the application of GPP for Circular Economy including on application of life cycle costing (20).	The Public and private (secondary) professional purchase should be addressed in combination and voluntary agreements with private associations and multinational corporations should be attempted.

Note: (x): refer to the section in Council-document.

Source: * Closing the loop – An EU action plan for the Circular Economy – Council conclusions (20 June 2016). General Secretariat of the Council.

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Integrated Product Policy 2020

The European Commission adopted in January 2015 an Action Plan for the Circular Economy. The plan suggest measures for how the market may significantly contribute to a circular economy.

Now the methodological fundament needed has been finally established and it remain for the new Commission to demonstrate how the toolbox may be applied in a coherent and effective European product policy.

The toolbox is the result of nearly 15 years of work and comprises harmonized guidelines for lifecycle based assessment of environmental footprints within specific product categories (PEFCR) and organization sectors (OEFSR) and also guidelines for 3rd party verification, benchmarking and communication. The guidelines have been tested in more than 20 pilot projects representing more than 50% of the respective (European) supply chains regarding product categories like dairy, shoes and textiles. The guidelines build upon lifecycle based Product and Organizational Environmental Footprint (PEF and OEF) standards developed by the Commission and published in Off. Jour. in 2013.

By the use of the developed toolbox it is now for the first time possible uniquely at the European market to define and credible communicate what is "a green product" and what is not.

The paper discusses possible measures for how to apply the toolbox in establishing and implementing a coherent new European product policy with objectives to significantly reduce especially products environmental (and climate) footprints in the future.