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3.4 Efficiency, Implementation procedures and market surveillance

The next major consideration for the evaluation is the question of the efficiency of the implementation procedures of the Directive, which includes questions about the costs of implementing the legislation at its various stages and whether the minimum requirements set by the Implementing Measures are effectively enforced. In addition, the evaluation needs to examine further whether the current requirements and procedures encounter particular problems in the case of complex products or product systems. Addressing this aspect of the evaluation means that the following issues need to be examined:

- How adequate, effective and efficient have been the processes for determining the products to be considered for Implementing Measures?

This question refers to:

- the procedures of the Directive relating to the identification of products or product systems with significant energy and environmental parameters
 - the criteria established by the Directive (significant sales and trade volumes, environmental impacts and potential for improvement) for the selection of products and product systems
 - the technical, economic and environmental analysis applied (including the use of the MEEuP methodology)
 - the detailing of the implementation provisions and the impacts that are to be anticipated
 - the complementarities and overlaps with other relevant policy tools (ELD, Eco-label, WEEE, RoHS etc.)
- How effective and efficient has been the development of Implementing Measures for specific products? This question refers to:
 - the procedures for developing Implementing Measures (working plan, preparatory studies, Consultation Forum and Regulatory Committee)
 - the quality of the discussion in a Consultation Forum
 - the value of the impact assessments
 - the conduct of the review of the draft Regulation by a Regulatory Committee
 - the use in practice of specific and/or generic requirements (SERs and GERs)
 - other requirements of the Implementing Measures (measurement standards/methods, conformity assessment procedures, information requirements etc)
 - the use of a Regulation as the form of legislation

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- What has been the implementation of the Regulations on the ground?
This question refers to:

- The Conformity Assessment processes and the development and use of standards
- The costs for of compliance
- The effectiveness and efficiency of market surveillance by Member States

- What has been the role of self-regulation and voluntary agreements?

This refers to:

- the criteria listed in Annex VIII of the Directive to evaluate the admissibility of self-regulatory initiatives
- the actual experience of the use of voluntary agreements (imaging equipment and complex set top boxes)

These issues are considered in separate sections below. First an explanation of the nature of the processes involved is provided and then we present the evidence gathered from the various sources - the stakeholders' survey, the observations made at the Stakeholders Meetings, additional information provided subsequently by some of the participants, a continuing literature review and comments made during the course of the interview programme. Note that whereas stakeholder comments on aspects of the relevance and effectiveness of the Directive served mainly to identify issues for further investigation, in principle, stakeholders' explanations of their own experience of the processes by which the Directive is implemented have more the character of primary evidence that has to be taken into account in a different way. In practice, this distinction is not so sharp, since opinions expressed have to be checked and validated, not least by other stakeholders.

The first Stakeholder Meeting was an important occasion to discuss how well the different processes work and to raise questions on the positions taken in the initial survey of stakeholder opinion and on the financial and administrative costs imposed on businesses, public administrations and others involved. Comments made were followed up in a wider documentary search, while the structured interviews allowed discussion of various points with different kinds of stakeholders. The second Stakeholder Meeting allowed the results of these processes to be taken into account and a further summary of positions presented. At the meeting itself and subsequently, new observations have been made on the positions presented.

3.4.1 Process for determining the products to be covered by the Directive

Background

The Directive sets out the framework for progress with energy-related products in general and makes provisions for Implementing Measures that set requirements relating to specific classes of product. Article 15 establishes a set of criteria for deciding, which products should be considered for Implementing Measures. The aim is to ensure that only products with significant sales and trade volumes, environmental impacts and potential for improvement are targeted. It determines the principles, the criteria and the procedures to be used in developing Implementing Measures. It also defines the technical, economic and environmental analysis necessary for setting requirements and provisions relating to the content of specific implementations and the impacts that are to be anticipated.

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A key consideration of the Directive is that it should apply to energy-related products with significant potential for improvement and reduction of environmental impacts. Thus, according to Article 15 of the Directive, Implementing Measures should be developed only for products with a significant volume of sales (more than 200,000 units sold annually in the EU is stated in Article 15 as an indicative number), have a significant impact on the environment and with a significant potential for improvement. Article 15 describes the different stages that should be followed for the development of the Implementing Measures and sets general criteria concerning the content of the provisions of the Implementing Measures

According to Article 16 of the Directive, the products to be selected for the development of Implementing Measures should be defined by the Commission in a Working Plan. The 2005/32 Directive required a Working Plan for the period 2009-2011 to be prepared by 6 July 2007 and submitted for review. In parallel, during the initial “transitional period” between the entry into force of the Directive and the final adoption of the Working Plan, Implementing Measures were to be introduced for a number of energy related product groups mentioned in Article 16(2) that were identified as priorities by the European Climate Change Programme. They included:

- heating and water-heating equipment
- electric motor systems
- lighting in the domestic and tertiary sectors
- domestic appliances
- office equipment in both the domestic and tertiary sectors
- consumer electronics
- heating, ventilation and air conditioning systems.

The first **Working Plan for the period 2009-2011** was adopted on 21 October 2008 and identified 10 energy using product groups that were selected from a broader list of 57 products identified.¹⁶⁵ These 10 product groups– under which more than one product category may be included – are:

- Air-conditioning and ventilation systems;
- Electric and fossil-fuelled heating equipment;
- Food-preparing equipment;
- Industrial and laboratory furnaces and ovens;
- Machine tools;
- Network, data processing and data storing equipment;
- Refrigerating and freezing equipment;

¹⁶⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0660:EN:HTML:NOT>

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- Sound and imaging equipment;
- Transformers;
- Water-using equipment.

The products covered in the two lists can vary in their complexity. Products categories such as heating, ventilation and air conditioning systems, machine tools, domestic and tertiary lighting or boilers can sometimes be rather complex products or represent systems of products. In contrast, other categories (e.g. white goods) are easier to define.

Following the adoption of the Directive 2009/125, that extended the scope of the legislation to energy related products (ErPs), a second Working Plan for the period 2012-2014 is being developed and discussed with stakeholders in a parallel process to this current evaluation. The Plan will identify remaining energy-using products and energy related products (ErPs) that meet the requirements set in Article 15 of the Directive and are candidates for preparatory studies. At the time of writing this process is nearing completion, but has not yet produced a definitive document.

Evidence from stakeholders

The on-line survey of stakeholders provided some initial evidence on a series of matters relating the question of effectiveness and efficiency of the procedures associated with the Directive. In relation to the question of the adequacy of the criteria set by the Directive for the identification and coverage of significant environmental parameters, 52% considered them adequate or very adequate while around 20% considered them inadequate. The percentage that considered the criteria adequate for the selection of products with significant improvement potential is even higher (57%) while less than one in four respondents considered them inappropriate.

However, the individual comments suggested certain issues and problems linked with the actual use of the criteria. Summarising, the main points were:

- Generally criteria are adequate but in practice the selection process is unclear
- There are issues with criterion for identifying products with significant sales and trade volumes, especially if PRODCOM data are used in this analysis – environmental improvement potential is more important
- The definition of the product scope is an issue and also the changes in product coverage over the period from the Working Plan to the determination of the final product requirements

Criteria are generally appropriate – but there are some comments on the fact that in practice they are not applied directly and a focus on energy has arisen from the initial product scope and the related Ecodesign Methodology (MEEuP). While only a few suggested that the sales volume criterion of 200,000 units was not an appropriate starting point, more consider that it is a rather arbitrary and static number that cannot respond to market trends. It is believed that product categories have often been grouped together in the Working Plan, only for the preparatory studies, but afterwards they were treated separately in implementing Regulations. Our overall understanding is that while the underlying principle of focusing on products with significant market volumes is generally accepted, the use of the indicative 200,000 units benchmark may not provide the best approach for certain product groups and should continue to be used flexibly. In relation to the environmental parameters, while the list is considered to be complete, there is

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some criticism reflecting the perceptions referred to in the section on the relevance of the Directive that in practice the focus tends to be too much on energy consumption during the use phase.

The responses to the survey collected indicated a high level of satisfaction with the initial work conducted, under the Working Plans to identify products with significant environmental impacts. The main concern relates to the adequacy of the Eurostat PRODCOM database as a basis for the identification of products.

In addition to the initial responses to the on-line survey, observations have been in the Stakeholder Meetings, in additional comments submitted by stakeholders and in interviews. The evaluation team has also received documents such as a discussion paper environmental NGOs¹⁶⁶ and a report of a survey of members of Teknikföretagen, the Association of Swedish Engineering Industries). A more differentiated message emerges.

Most stakeholders believe that the general framework, its objectives and its processes have been well formulated and operate well as far as they go. On the whole, governmental, industry, environment and consumer groups believe that there are appropriate opportunities for expressing their opinions and recognise that the procedures prevent any one group from dominating the process. However, there have been numerous comments about how the framework could be strengthened and also on its ultimate limitations.

As a potentially overarching and co-ordinating instrument, the Ecodesign Directive is seen to provide an opportunity for a consistent regulatory approach to environmental issues, especially through the application of Article 15.6. But industry stakeholders, in particular, have indicated that there are problems of consistency between the requirements of the Ecodesign Directive and those of the WEEE and RoHS Directives. A contrast is perceived with the co-ordination between the Ecodesign Directive and the Energy Labelling Directive. Co-ordination between these two instruments is believed to work better because officials in the Commission (and also at a national level) have closer working relationships with officials responsible for Energy Labelling than with those responsible for the WEEE and RoHS Directives. In contrast to other examples of Internal Market legislation, the 'batch' approach of the Ecodesign Directive is seen to bring results more quickly, though there are doubts that the process for setting standards has been able to respond sufficiently to the extra demands made on it. .

Some dissatisfaction was expressed by the environmental NGOs about practical issues to do with certain aspects of Article 15.6 of the Directive and associated parts of its annexes that provide the framework for developing Implementing Measures. An assessment is called for of the impact of Implementing Measures on the environment and the market – both consumers and manufacturers. Yet the means for undertaking such an analysis has not been established on a systematic basis. Similarly, in the absence of information on costs to consumers, it is difficult to interpret correctly the provision that says that 'there shall be no significant negative impact on consumers in particular as regards the affordability and the life cycle cost of the products. It is suggested that the development of a more substantial data framework and more systematic procedures and practices in this area, with documented support and guidelines could improve the efficiency with which this stage of the process operates, lead to better informed decisions and add a degree of dynamism to the whole process.

Some industry stakeholders indicated that they believe that it is often difficult to apply Article 15.5a of the Directive that states that 'there shall be no significant negative impact on the functionality of the product, from the

¹⁶⁶ Joint Discussion Paper from Environmental NGOs 'The EU Ecodesign Directive: how to better fulfil its potential?' 9th May 2011.

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perspective of the user' without detailed technical knowledge of the products concerned. This has implications for the expertise to be required of the consultants conducting preparatory studies rather than for the formulation of the requirement itself.

Overall though, the feedback from stakeholders on the procedures for selecting products has been relatively restricted. This was undoubtedly influenced by the parallel process to the evaluation involving the elaboration of the second Working Plan, (or more strictly, an up-dating of the existing Working Plan), so that attention was directed to actual developments rather than to reflecting on the nature of the process. However, in the context of the overall response from stakeholders, it would appear that there is an acceptance of the initial procedures and criteria for selecting products for more detailed consideration and that the main causes for contention lie in issues that have a broader significance for the operation of the Directive.

3.4.2 The development of Implementing Measures

The procedures

Following the initial identification of products in the Working Plan, a step-wise procedure is required for the development of the Implementing Measures. So far, the procedure has involved the following:

- A preparatory study to identify which Ecodesign requirements should be set for a particular product to improve its environmental performance. These studies inform the formulation of a proposal by the Commission. The preparatory studies for energy-using products have been expected to follow the Methodology for the Evaluation of Energy using Products (MEEuP) that was developed by the Commission with the help of an external consultant. A Methodology for the Evaluation of Energy related Products (MEErP) is currently being developed and would need to be developed further if an even wider group of products were to be targeted.
- A discussion in a Consultation Forum including experts, stakeholders and Member States representatives to allow stakeholders to be informed and provide their positions on the possible measures. The role of the Forum is to contribute in the definition and review of the Implementing Measures. The Forum should also monitor the efficiency of the established market surveillance mechanisms and to assess voluntary agreements and other self-regulatory measures taken in the context of the Directive. The Forum is composed of up to 60 members including representatives from each of the 27 Member States, 3 representatives from EEA countries and 30 stakeholders representing industry, standard bodies, trade unions, environmental protection groups and consumer organisations. The group meetings are open for observers from candidate and EFTA countries and from organisations which are not official members but have a legitimate interest in the discussion.
- An impact assessment by external experts or the Commission services to assess the expected environmental, economic and social impacts of alternative policy options leading to the definition of the appropriate Implementing Measures. The impact assessment should be reviewed by the European Commission's impact assessment board. On the basis of the comments of the Consultation forum and the impact assessment the Commission develops a draft regulation.
- Notification of the World Trade Organisation
- Review of the draft regulation by a Regulatory Committee composed of representatives from each Member State and adoption on the basis of weighted majority.

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- After adoption from the Regulatory Committee the Regulation is sent to the European Parliament and the Council for scrutiny
- Adoption of an Implementing Measure in the form of a Commission Regulation

We should note that, while this has been the approach followed so far, there is no legal requirement for the adoption of an Implementing Measure in the form of a Commission Regulation. A procedure leading to a Directive may also be adopted, if this is considered to be more appropriate.

One general observation has to be made before looking at the details of the procedures leading up to Implementing Measures. This concerns the provisions in the Directive for Generic Requirements. Article 15 envisages that Implementing Measures could make use of either generic or specific Ecodesign requirements. Methods for setting each type of requirement are described over several pages in annexes to the Directive. In practice, although there have been requirements relating to the supply of information and the preparatory study for televisions suggested other generic requirements, so far there has been no use made of generic requirements in combination with performance standards.

Generic Requirements aim to improve the environmental performance of products, 'focusing on significant environmental aspects thereof without setting limit values' The intention of the Directive was to make use of them when it was not appropriate to set limit values for the product group under examination.

The absence of generic requirements in part reflects the concentration in the products initially targeted on energy use. A few stakeholders have suggested that there could in fact have been greater reference to generic provisions, but a more common view is that they pose problems for enforcement, since by definition they do not specify limit values. An early view in the study for the EEB¹⁶⁷ referred to above saw the failure to use them as stemming from the basic orientation of the Directive, which because of its nature as an Internal Market measure had moved away from Ecodesign as a process in which the producers took responsibility for their products over the whole life cycle to one where the aim is primarily to exclude the worst performing products from the market.

Analysis of evidence

Evidence from the initial survey has been complemented by comments made during the first Stakeholders Meeting and during the course of interviews and documentation.

A key issue raised in relation to the above step-wise procedure is its length and complexity. From the twenty four preparatory studies launched for the products identified in the transitional period (Article 16)¹⁶⁸ twelve Implementing Measures have been adopted so far in the form of an EU Regulation. In addition to that, Directive 2000/55 concerning ballasts for fluorescent lighting was repealed by Regulation 245/2009 that took the form of an Implementing Measure of the Ecodesign Directive.

13 products, however, remain from those identified in the first Working Plan. 3 studies have been completed and 9 more are in different stages. These include priority products, such as boilers, water heaters, computers, supermarket fridges and tumble driers, where there has been slow progress,

¹⁶⁷ International Institute for Industrial Environmental Economics (IIIEE) at Lund University 'Designing Greener Electronic Products: Building Synergies between EU Product Policy Instruments or Simply Passing the Buck?

¹⁶⁸ http://ec.europa.eu/enterprise/policies/sustainable-business/eco-design/product-groups/files/productgroups_transitionalperiod_en.pdf

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For one product in the list (complex set-top boxes) a voluntary agreement is nearing completion ¹⁶⁹(see Table 3.47 below), although it has not been endorsed by the Commission yet. A second agreement for imaging equipment is under discussion and there are proposals for voluntary agreements concerning machine tools. In addition, although not included in the transitional period product list or the first Working Plan, the manufacturers of medical imaging equipment have come forward with a proposal for a voluntary agreement that is under consultation.

Table 3.41 – Progress in the development of Implementing Measures for ErPs (Products in transitional period and First Working plan)

	Work plan	LOT	Product	IM adopted (date)	Regulatory committee	Consultation stage	Prepar. study completed	Prepar. Study on-going
1	TP ¹⁷⁰	ER 6	Standby and off-mode losses of EuPs	17/12/2008				
2	TP	ER 18a	Simple set-top boxes	04/02/2009				
3	TP	ER 19	Domestic lighting (general lighting equipment)	18/03/2009				
4	TP	ER 8-9	Tertiary Lighting	18/03/2009				
5	TP	ER 7	Battery chargers and external power supplies,	06/04/2009				
6	TP	ER 13	Domestic refrigerators and freezers,	22/07/2009				
7	TP	ER 11	Electric motors 1–150 kW,	22/07/2009				
8	TP	ER 5	Televisions	22/07/2009				
9	TP	ER 11	Circulators in buildings	22/09/2009				
10	TP	ER 14	Domestic dishwashers	01/12/2010				
11	TP	ER 14	Domestic washing machines	01/12/2010				
12	TP	ER 11	Ventilation fans	26/04/2011				
13	TP	ER 18	Complex set-top boxes	VA approved (not official)				
14	TP	ER 10	Residential air conditioning appliances		Adopted by RC May 2011			
15	TP	ER 3	PCs and computer monitors					
16	TP	ER 11	Electric pumps					
17	TP	ER 2	Water heaters					
18	TP	ER 1	Boilers and combi-boilers					
19	TP	ER 4	Imaging equipment			VA discussed		

¹⁶⁹ http://www.eceec.org/Eco_design/products/complex_set_top_boxes/Recommendations_Feb2011

¹⁷⁰ Transitional period

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	Work plan	LOT	Product	IM adopted (date)	Regulatory committee	Consultation stage	Prepar. study completed	Prepar. Study on-going
20	TP	ER 12	Commercial refrigerators and freezers					
21	TP	ER 16	Laundry driers					
22	TP	ER 17	Vacuum cleaners					
23	TP	ER 19b	Directional lighting					
24	TP	ER 15	Solid fuel small combustion installations					
25	TP	ER 26	Networked standby losses					
26	TP	ER 10	Residential ventilation and kitchen hoods					
27	TP	ER 12	Refrigerated display cabinets and vending machines					
28	WP1	ENT 1	Refrigerating and freezing equipment					
29	WP1	ENT 3	Sound and imaging equipment					
30	WP1	ENT 2	Distribution and power transformers					
31	WP1	ENT 5	Machine tools					VA discussed
32	WP1	ER 20	Local room heating products					
33	WP1	ER 21	Central heating products (other than CHP)					
34	WP1	ER 22	Domestic and commercial ovens					
35	WP1	ER 23	Domestic and commercial hobs and grills					
36	WP1	ER 24	Professional wet appliances and dryers					
37	WP1	ER 25	Non-tertiary coffee machines					
38	WP1	ENT 4	Industrial furnaces and ovens					
39	WP1	ENT 6	Tertiary Air Conditioning					
40	-		Medical imaging equipment			VA discussed		

Sources: ECEEE¹⁷¹ and Coolproducts¹⁷²

¹⁷¹ http://www.eceee.org/Eco_design/products/?sort=status_reverse

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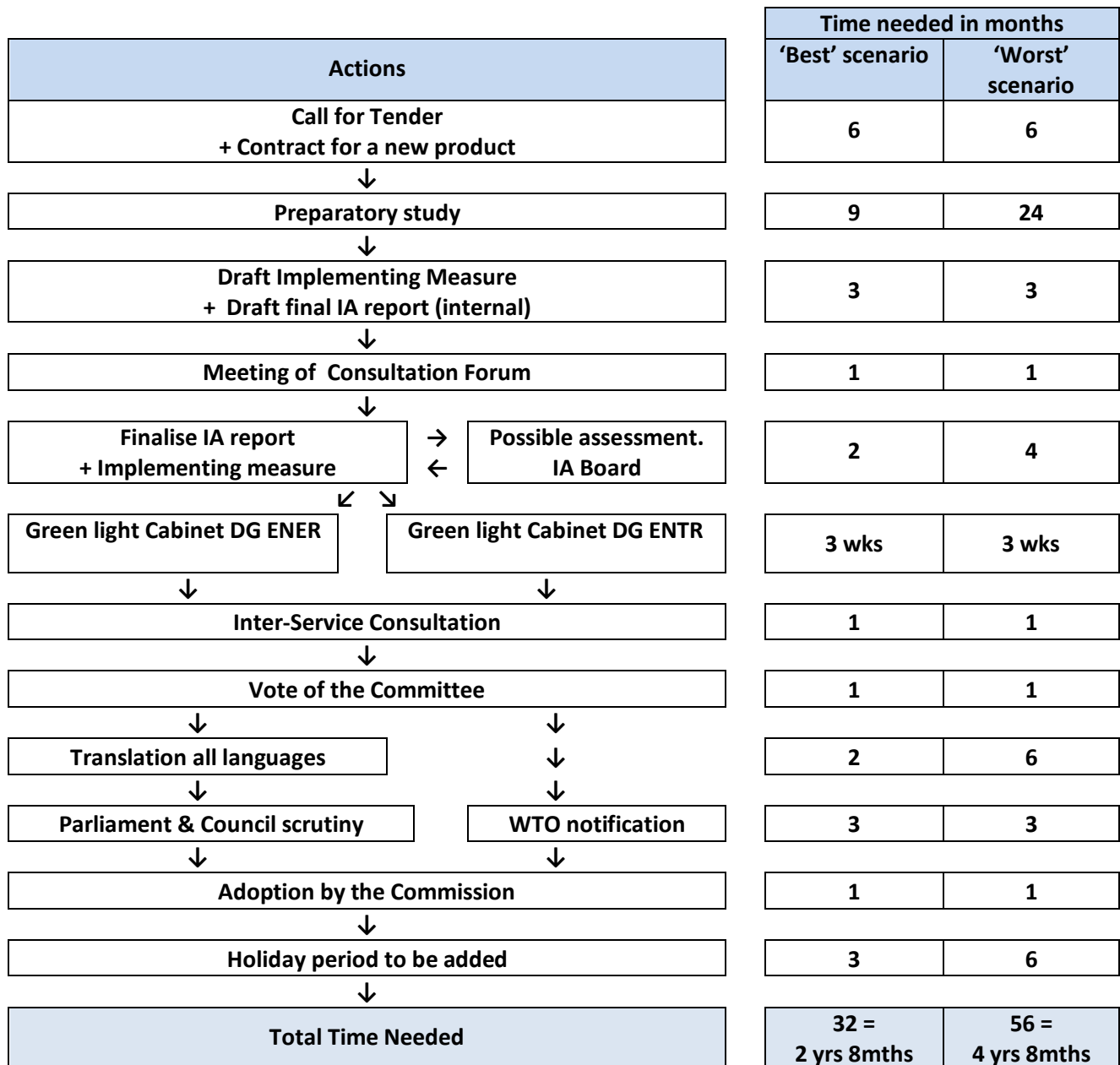
The Commission has provided estimates for the time required for the various steps of the procedure. These are presented in the diagram the follows.

¹⁷² <http://env-ngo.eup-network.de/product-groups/>

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Chart 3.28 - Procedural Steps for Ecodesign Implementing Measures



The best scenario so far for the full development of a regulation is 2 years, 8 months, while the worst scenario has been 4 years, 8 months. But this does not include the cases that have been held up, such as boilers and water heaters where the process has already been extended to close to 6 years. In fact, it is fairly clear that the time taken to arrive at a Regulation has been getting longer, as more complex products and more complex market and technical considerations are targeted.

This has important implications for the momentum of the whole process. The average duration of a preparatory study is around 1.5 years. There is then a gap between the end of the study and the first consultation of stakeholders in the Ecodesign consultation forum. For completed processes, this has been around 4 months, but for those in the pipeline it has been somewhat longer, up to a year. There is then a

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further year for the finalisation phase up to publication in the Official Journal (and this time is getting longer). On top of this, after the Regulation has been adopted, there is usually a period of 3-5 years before producers have to comply with requirements of the greatest stringency. This means that in total, it is often only after 7 to 9 years that products are actually subject to substantial Ecodesign requirements, so that the real results for a product group are really only apparent after nearly a decade. For some important products, such as boilers and water heaters, the delays are even longer and the expected reductions in energy use and CO₂ savings not achieved.

Given the multiple stages and stakeholders involved, there are various bottlenecks and reasons for delays arising. The discussions and survey responses have indicated some of the more salient of these, although their role can vary among product categories:

- the complexity of a specific product category and of the relevant technical issues
- the availability of relevant data for the preparatory study
- the presence of relevant standards
- the position taken by industry and other stakeholders and the negotiations that can be very lengthy
- the structure of the product market, especially the number and size of firms operating in it
- the human resources dedicated by the Commission Services

In relation to the last point, all stakeholders agree that this is a major cause for delays in the whole process and the evaluation team has sought to establish the staffing position. The situation is that there are 8 desk officers working full time in the unit responsible in DG Energy, that have assumed the burden for the development of all Implementing Measures for the products in the transitional period. The 8 desk officers are currently responsible for 21 products, for which the process is at different stages. Furthermore, in the initial period desk officers in DG Enterprise and Industry were responsible for various horizontal issues (equivalent to 2 FTE) while in the last two years they have been responsible for 19 products of which 6 are in an active stage.

In terms of resource requirements for the Commission, the evaluation team has also examined some alternative scenarios. Assuming that 10 Commission staff were engaged over the 6 year period of 2006-2011, together with assumptions about salary and other costs, gives rise to an estimate that the cost for the Commission of the Ecodesign Directive up to now has been around €24.6 million for the six year period of 2006-2011. For the coming 5 years, on the assumption that 10 new products¹⁷³ from the second working plan will be considered and 14 FTE will be occupied¹⁷³ it would amount to an additional €14.8 million. However, if the number of staff involved is increased to respond to the increasing number of products, more products studies are initiated or more Implementing Measures are reviewed, this cost could increase further (see further analysis in Section 3.4.5).

The extent of resources made available clearly poses a major constraint at various points in the implementation of the Directive. By way of comparison, staffing levels in the USA (including the DoE, USEPA and LBNL¹⁷⁴) are in the region of 10 times the number of desk officers in DG ENER in the

¹⁷³ Estimate provided by DG Enterprise and Industry.

¹⁷⁴ The US Department of Energy, US Environmental Protection Agency and the Lawrence Berkeley National Laboratory

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Commission. Even in China which has developed its regulatory framework more recently, there are about 70 staff and more than 40 product regulations. Similarly in relation to studies, it has been calculated that the resources spent on developing the first Working Plan and the 37 Preparatory Studies (22 completed and 15 ongoing) so far amount to €11.1 million. Each of the main studies costs around € 300,000. This contrasts starkly with the amounts spent by the United States administration on parallel preparatory studies, where the budget per product frequently amounts to over a million dollars. Furthermore these studies only focus on energy efficiency issues. Overall in 2010 alone, the budget for the US Department of Energy's Appliance and Equipment Efficiency Standards programme was \$ 35 million, leading to one estimate that the average US budget per product group is more than 10 times the EU budget¹⁷⁵. This disparity in resources has enabled the US to catch up on a backlog of products under review and explains a large part of the shortcomings in Europe.

It is generally held by all the different stakeholder groups that the lack of resources on the part of the Commission is a major constraint on the whole implementation process and is particularly significant in explaining the relatively slow progress in recent years in arriving at Implementing Measures for some products. In fact, this constraint is said by some to be of such significance that it brings into question the possibility of any extension of the scope of the Directive or even, in the near future, any consideration of other products under the existing provisions.

It should be said that there are other factors affecting the time taken to follow the process through to a Regulation, such as the inherent complexity of the products, the number and variety of stakeholders etc. In fact, in order even to make a preliminary assessment of the overall question of resourcing, it is necessary to consider other aspects of the efficiency with which the procedures operate.

In the survey and subsequently, comments were made on various aspects of the processes by which the Directive is implemented. They are summarised as follows:

Working Plan

- The Working Plan is a fundamental tool of Ecodesign policy and should give clear signals to manufacturers and to the market.
- If it were more extensively researched, it could have a more determinant role, reducing the need for subsequent discussion and major changes in the provisions. This would encourage producers to anticipate the changes with confidence. It would speed up the delivery of results.
- The Working Plan often uses broad definitions of product groups which must then become much more detailed in subsequent stages. This means that manufacturers cannot assess clearly from the beginning which specific products will be included and if they are concerned and to what extent, since the examples of products given in the appendix are not all-encompassing. The Working Plan cannot provide the same sort of detail as preparatory studies and needs to ensure that there is sufficient flexibility allowed in the subsequent stages of investigation. In addition, if the Working Plan is to highlight system issues and system boundaries, it will not be able to address all the complexities that arise in these cases and will have to rely on the more detailed investigations that are possible under preparatory studies. Nonetheless, it should be appreciated that flexibility in later stages comes at a cost in terms of the uncertainty that can be caused for industry. Furthermore, too broad a product group definition can make it difficult or even impossible to conduct a substantiated preparatory study.

¹⁷⁵ VHK in 'Draft Report : Methodology for Ecodesign of Energy-related Products' Annex V

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- Precision with regard to the products targeted could be improved if they were listed by PRODCOM or CN codes, with which firms are familiar.
- Good quality research at an early stage can save time and expense for everyone subsequently.
- Initial research could at an early stage exclude products where it is not possible to achieve large energy savings through the adoption of legislation.
- The criteria for selecting products, which the Directive envisages should be applied at the product level (in the preparatory studies), are more generally applied to product groups at the Working Plan stage.
- No indication is given in the Working Plan of product priorities or timelines for adopting regulatory measures, as is required by law in the US. Clear priorities and timelines would provide more certainty and enable better planning for all stakeholders. Looming deadlines would also concentrate minds and help to speed up decisions in difficult areas.
- A rolling programme to up-date the Working Plan, for instance every three years, could allow more focus within each version and help to impose timing disciplines

The Working Plan could usefully highlight the in-depth study areas required in the preparatory studies for analysing non-energy impacts.

Preparatory Studies

- The product groups considered in the Working Plan are significantly broader than the focus of the Preparatory Studies or the final Regulation. Thus the actual consumption and potential savings associated with the product group, as presented in the Working Plan, are not addressed or necessarily captured by the final Regulation or Implementing Measure.
- There should be a more rigorous check that the selection criteria specified in the Directive relate to the specific products considered in the Preparatory Studies, as well as the product groups considered in the Working Plan. More generally, the methodology used in preparatory studies needs to be very clear about how the Article 15 criteria are being interpreted.
- Ecodesign requirements should always remain technology neutral in order not to promote one technology against another and inhibit innovation.
- Lack of financial and human resources and of adequate technical expertise to follow-up and carry out the studies are real challenges that hamper the delivery of robust, high quality studies that cover all the issues and this in turn means that the technical basis for the Implementing Measures is sometimes less than adequate. This is particularly a problem for more complex product groups, such as boilers and water heaters. In effect there are insufficient resources to provide the required expertise to properly address the ambitious goals of the Directive.
- The range of expertise required for the studies is very extensive. As well as knowledge of technical aspects of the products in question, techniques for assessing energy and environmental impacts and setting appropriate requirements and understanding of market considerations, studies require an institutional knowledge of policy frameworks and administrative processes to ensure that proposals have taken the appropriate policy context into account and are making proposals that are realistic. It

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may be that different arrangements and a different distribution of responsibilities could more adequately address the full range of issues that have to be taken into account.

- The long and complicated procedures mean significant costs for certain types of stakeholder, like environmental groups or SMEs, and this can affect their level of participation.
- Larger studies should be organised or groups of studies, involving experts that are really familiar with each of the products under consideration.
- The lack of sound and reliable data is not taken seriously enough. If a well-founded preparatory study is not feasible, this should be acknowledged and an appropriate market monitoring scheme put in place.
- There is a suggestion from a number of sources that input from industry seems to be automatically integrated into the body of the report by the consultants whereas that from other stakeholders is often ignored, or disregarded without explanation, even when presented in a constructive way and substantiated by high quality analysis and data. It is as if the agenda for the reports is pre-set.

Consultation Forum

- All sides generally welcome the opportunity presented by the Consultation Forum to debate proposals.
- Some question the way that representation at the Consultation Forum is determined.]
- There has not been a Call for Expressions of Interest relating to Ecodesign Consultation Forum membership since 2006. The detailed rules for appointing CF members are not published.
- The process of determining the requirements is far too long and often involves repeated discussions of similar issues. Knowledge and experience has now accumulated from the development of Ecodesign Regulation and from eco-labels, energy labels and green public procurement. This could be better utilised to shorten the process.
- In particular, there is now enough experience to develop standard templates for working documents, and the responses, including a list of the questions to which stakeholders are expected to reply. This would accelerate and provide a better structure for the consultation.
- It should also be possible to take advantage of early negotiations between the most important stakeholders (industry organisations, NGOs, national experts) to present robust proposals to the Consultation Forum, and reach a consensus more quickly. Establishing the conditions for such an early discussion would speed up the decision-making process and increase the EU Institutions' confidence in a proposal

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- The way the impact assessment is conducted is not transparent to stakeholders, even if it is conducted in accordance with the Commission guidelines.
- Assessments of impacts should feature much earlier in the process and accompany each stage. Even if a formal and comprehensive impact assessment is not conducted until the Implementing Measure proposals are being finalised, initial assessments of impacts on consumers, industry, the environment, international trade, etc. can be made in preparatory studies, identifying any major issues at an early

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stage. These could then follow and inform the evolution of the provisions of the Implementing Measure.

- In the case of fans, the Implementing Measures cover products and applications that were not included in the preparatory study. This meant that household appliance manufacturers were not consulted during the preparatory phase and were suddenly faced with legislative proposals at a late stage. Some thought is needed on how to deal with the setting of exemptions or relaxed requirements. Usually, of course, there is a good reason for an exemption, such as in the case of single-duct coolers for domestic air-conditioners or sound & image equipment in professional use, where higher quality rendering is necessary than for the domestic market, even though more energy is needed. The problem is to avoid these exemptions becoming loopholes in the legislation. In these restricted circumstances, market-conditioned requirements might be considered that come into operation, once a certain the market for the 'exceptions' reaches a certain volume.
- Another area where market-conditioned requirements may be relevant is in the setting of long-term requirements, where they could allow more flexibility and ambition. Long-term requirements could be set at an ambitious level, but only enter into force once average efficiency in the market reaches this level. The use of any market-conditioned requirements would need some development both of methodology and data collection.

It has been stressed, particularly in contributions from the environmental NGOs, that it is important to learn from all the experience and difficulties encountered across the whole range of procedures, not least in order to speed up procedures in the future. Past experience could be used to anticipate difficulties and could be expressed and further consolidated in the form of a guidance document to act as a point of reference for all concerned. This could be elaborated in conjunction with the Ecodesign Working Group and address cross-cutting issues in particular. These would include how to deal with the potential overlaps with other EU product policies, set out an approach for dealing with the product versus system issue, describe how to design the scope of the legislation and exemptions, how to determine the number of tiers to be established and how voluntary initiatives can be assessed. It could also provide guidance on recurrent issues, such as end-of-life considerations, embedded energy in electronics and the impact of refrigerants,

It may also be advantageous to consolidate experience by creating a dedicated institutional framework. This issue will be considered further in the assessment of cost-effectiveness of the Ecodesign (Section 3.4.5)

There was also an appeal for better information provision. It should be possible to bring together all the various activities relating to the Directive and the corresponding web sites in a single Ecodesign portal.

Although stakeholders have expressed a number of very specific points, there appears to be a general message that more effort expended at an earlier stage to produce extensive, detailed and authoritative Working Plans and Preparatory Reports could speed up the subsequent process, provide greater certainty for producers and reduce the work and costs, currently incurred at later stages.

The MEEuP methodology

The MEEuP methodology has been a key element of all the preparatory studies conducted so far. The methodology is based on a life cycle approach aiming to assess the broad range of environmental impacts of products in the different phases of the products' life cycle. The initial methodology was built with a clear focus on energy using products. Over the period in which the evaluation has been conducted, another parallel exercise has been developing the methodology further, particularly extending it to cover Energy-related Products. This exercise was completed in September 2011, but the revised methodology has yet to

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be applied. It should be said that the evaluation of the Ecodesign Directive has not aimed to assess the methodology employed in preparatory studies, as such. The Directive itself is not committed to any particular methodology at this level and in any event, elsewhere this issue is being given more detailed consideration than it would be possible to undertake in the evaluation exercise. Nonetheless, there is an interest in how the methodology has determined the development of Implementing Measures and influenced the overall performance of the legislation in practice.

The initial survey feedback indicated that the Eco-Report tool of the MEEuP methodology and the way it is interpreted by study consultants is not considered adequate by a significant number of stakeholders (around 35% of respondents). The key criticism – that reflects a more general criticism of the Ecodesign approach – is that it does not adequately handle other environmental aspects besides energy and that it leads study consultants to put greatest weight on the use phase. While it is generally accepted that during the use phase energy represents the key issues as far as EuPs are concerned, it is seen by some as leading to a sidelining of other environmental aspects. The limitations were considered to be potentially even greater when it comes to an extension to energy-related products.

On the other hand, some stakeholders maintained that the MEEuP provided the appropriate balance between a very detailed and rather theoretical full scale life cycle analysis and the need for a practical and operational tool that identifies the key areas that pose environmental problems. The major difficulty at this level is that the assumptions made and the analysis conducted with the use of the EcoReport tool are not set out as clearly and transparently as they should be.

Further discussions and analysis of material submitted in the survey highlighted a number of more specific points. At the same time, most stakeholders referred to the parallel review of the MEEuP, which has since considered many of the issues raised. The following refer mainly to remaining issues and points that have broader implications for the operation of the Directive.

- The MEEuP methodology is generally thought to be a useful tool, particularly in providing a standardised reference point for all concerned. Efforts to make its application as transparent as possible, and especially to make assumptions more explicit, will enhance its status further.
- There is some concern that as coverage of products moves from those in the mass market (such as white goods) to more specialised products in which there is one-off or small scale production, a generalised approach may be less appropriate.
- It is likely that there will continue to be disagreements over the balance between the relative emphasis on energy and other environmental impacts and on the detail of the life cycle analysis. It may be more productive to acknowledge that differences of view will persist and address them explicitly in the preparatory study.
- The systematic assumption that all existing legislation is fully implemented is wrong and tends to undermine the impact of requirements beyond the energy in use stage. For example, assuming a full compliance with RoHS and WEEE has led to neglecting end of life impacts. Saying 85% of a product is recovered is a wrong assumption, since it neglects the collection rate (between 20% and 35% at EU level).
- Current recycled content reflects the past but does not say much about the future. The metals industries collectively have severe reservations about the current approach, which focuses on recycled content only. Current recycled content in itself is an important, but not sufficient indicator of resource

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saving. Some products may not be recyclable a second time because of unacceptable loss of properties. Metals, in contrast, are recyclable again and again.

- Again there were references to the quality of the data needed for the database used in the Eco-Report, underlining the importance of attempts to improve the data framework.
- A number of points were made about particular tasks within the MEEuP methodology :
 - Task 1: although there is a general requirement to involve relevant standardisation bodies, this does not always seem to have been done. There should be far more dialogue between consultants and the European Standards Organisations, preferably including discussions with relevant technical committees.
 - The products the consultants have decided to focus upon should be clearly identified and the reasoning for their selection stated. Reasons should also be given when certain products are considered out of the scope of the study.
 - Task 2 Economic and market analysis: More emphasis should be given to the characterisation of the market, including market structure. Data gathering is fundamental. More emphasis could be given to competitiveness (in line with Article 15.4(b) of the Directive), especially since many goods are traded globally and so face competition and technical barriers elsewhere in the world.
 - Task 3: the limitations of behavioural investigations need to be clearly stated, as do any constraints experienced in gathering data.
 - Task 6: The state-of-the-art in applied research may not always become mainstream; in particular any issues to do with patent protection should be highlighted.
 - Task 7 Improvement Potential: Option identification is very important and clearly links to the setting of eco-design requirements. It is right that options are listed and related to impacts and costs, but the LLCC point should be used with some flexibility. If the savings to be delivered are limited and only reachable at high cost for consumers or for manufacturers (with major modifications of the production lines), the consultant should carefully evaluate all these impacts before making a proposal simply based on the LLCC.
 - Task 8: Scenarios and policy options could be much further standardised, and presented in a more structured way with evidence to back each important choice made by the study consultants. Industry and consumer impacts could be studied to a far greater degree. In keeping with references made to SMEs in the Framework Directive, it would be appropriate already in the preparatory study to highlight SME impacts in Task 8 work
 - A standardised format could be used in presenting study conclusions/recommendations.

A particular problem with the use of a primary energy factor (PEF) of 2.5 for electricity has been raised by several Norwegian stakeholders and this issue has also been taken up by Business Europe. This PEF has been used for several product groups and is said to give other energy carriers (e.g. distributed gas) a competitive advantage (since gas is intrinsically more energy efficient than electricity). The purpose of introducing an EU-wide average PEF in Ecodesign Regulations is to take account of energy losses from the extraction, conversion and distribution of primary energy and ensure a harmonised factor across the common EU market. However, energy sources differ between countries and in the case of Norway,

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electricity is primarily generated by hydro-electric systems. Consequently, the focus on energy use rather than energy production is inappropriate and is said to pose a substantial threat to domestic producers.

It is argued that the product-by-product approach of the Ecodesign Directive is not coherent with other top-down EU policy measures, including measures in the ETS Directive, RES Directive and CHP Directive. Furthermore the global consequences have to be taken into account. Norway does not have an infrastructure to supply gas and it would be extremely expensive and cause considerable environmental damage to create one.

In response, other stakeholders have argued that an EU average PEF is indispensable for the operation of the Internal Market, where products are traded according to common, EU-wide rules.

Overall, it is worth bearing in mind a note of caution sounded by one stakeholder on the need to keep the methodology practical and not too detailed. Only those factors that pose a really significant environmental impact should be addressed in pan European legislation.

There is also a case for some flexibility in the application of the method to the parts of the life cycle being studied with a view to speeding up the preparatory study process and making sure all relevant parts are included. When it is widely known that the main problem is at a certain phase of the cycle, there should be a way to reduce the time taken to examine the other phases.

Adequacy of Ecodesign requirements set

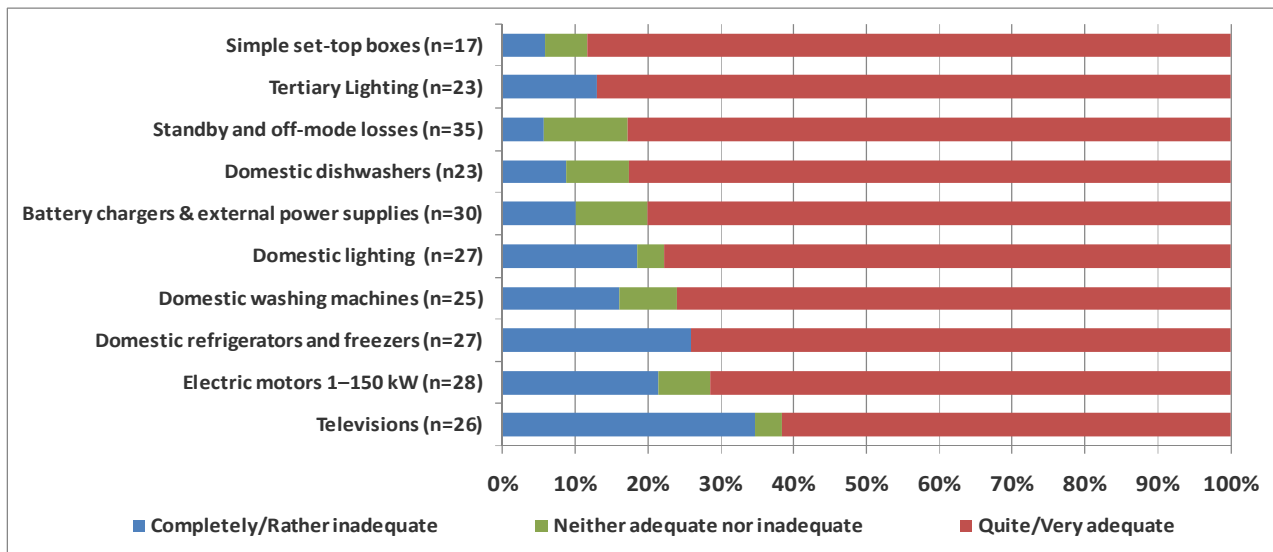
The survey responses provided some indication of the views of active stakeholders concerning the acceptability of the requirements set so far, in that there was no suggestion of any major problems in relation to any particular product. Among those that responded (more than 50% did not) more than 60% considered that the Implementing Measures have been adequate for all product groups so far. This was particularly the case for tertiary lighting, stand-by and off-mode and simple set top boxes and less so for domestic refrigerators and freezers, and televisions.

Individual comments point to a failure to develop separate and more adequate requirements for certain niche domestic refrigerators (e.g. wine storage) or the fact that LED technologies have not been considered for television sets. In a different way the points raised here again make again reference to the long period between the preparatory study and the Implementing Measures and the fact that market developments may in certain cases lead to suboptimal requirements.

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Chart 3.29 – Adequacy of the requirements set by Implementing Measures for different products (share of respondents – no opinion/do not know not counted).



Source: CSES survey

Products and Product Systems

An issue frequently raised in relation to certain products (fans, motors, construction products) is whether it is appropriate to set requirements for the products specifically or rather to have an approach that sees them as part of systems. The argument is that the appropriate performance requirements depend importantly on the situation in which the product is used. In the case of insulating material, for instance, an energy-related product that may potentially be covered by a Regulation, its thermal properties and the overall insulating effect depend considerably on the situation and the properties of materials where it is used. The same insulating material will have different overall effects depending on whether it is used in cavity walls of differing materials or as roofing insulation. Specifying thermal requirements for insulating material in isolation, it is argued, may not make much sense, could be difficult to verify and may promote the use of materials that are less good in relation to other environmental criteria. Similar situations apply to electric motors and ventilation fans, already covered by existing Regulations.

Comments received have mainly raised the problems faced by producers with existing or prospective Regulations, rather than suggesting any potential resolution, other than the need to look at systems such as buildings rather than individual products. Reliance on the Energy Performance in Buildings Directive has been suggested by some in the case of construction materials, but there have also been remarks about problems with this approach arising from differences in implementation across the EU. The approach now being taken with eco-labelling of different building categories has been referred to as a possible model, while the case has also been made for having at least minimum requirements for specific products within a more general solution. Overall, however, a more detailed input is required before arriving at any conclusions in this area. An important contribution to this will be the conclusions in this area of the work on the revision of the MEEuP methodology.

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Conclusions on the processes that lead to Implementing Measures

A number of insights from stakeholders have been reported covering various aspects of the development of Implementing Measures for specific products. Many of these individual points should be considered by those responsible for developing Implementing Measures, but the main conclusions of the evaluation team in this area are as follows:

- The relatively open processes that have been used under the Directive, with broadly-based stakeholder involvement are generally supported by stakeholders and the criteria for identifying target products appear to work flexibly and satisfactorily. The main issues are at a more detailed level.
- To ensure consistency with other policy instruments, notably legislation such as the WEEE and RoHS Directives or the EPBD and CPR, co-ordination between the officials responsible is critical. This needs to be improved and put on a more systematic basis.
- The major concern of industry is that the situation should be as clear as possible, in order to allow forward planning. Knowing which products are to be covered, what the likely requirements will be and the time frame over which they are likely to apply are major advantages. Delay on the other hand leads to uncertainty.
- Thirteen Ecodesign Implementing Measures have been adopted so far in the form of an EU Regulation. 13 products remain in the process. The best time achieved so far for the full development of a regulation is 2 years, 8 months, while the worst scenario has been 4 years, 8 months. The average time taken, however, is bound to increase as more difficult products are covered.
- The delays in the processes leading to a Regulation mean that with the time allowed subsequently for full implementation, it is often only after 7 to 9 years that products are actually subject to more stringent Tier-2 Ecodesign requirements. The market transformation for a product group is only finally apparent a decade after the products were initially targeted.
- The delays in the development of an Implementing Measure for boilers and water heaters have led to a missed opportunity in terms of energy savings. These products are by far the EuPs associated with the greatest levels of energy consumption.
- The inadequacy of Commission resources for participation in implementing processes is clearly a major cause of delay and a very significant constraint on the whole Ecodesign system. By way of comparison, staffing levels in the USA are in the region of 10 times the number of desk officers in the Commission. Even in China, there are about 70 staff and more than 40 product regulations. There is a similar disparity in terms of resources devoted to the necessary studies.
- Good quality research at an early stage to produce extensive and detailed Working Plans and preparatory studies can save time and expense for everyone subsequently.
- Preparatory reports do not currently have sufficient coverage of market conditions and possible impacts of regulation. Data present a problem, but this too can be addressed.
- There are various problems with the Working Plan, not least that it does not provide indications to industry with sufficient detail on which products are likely to be covered by eventual Regulations. Although the Working Plan cannot undertake the detailed tasks of preparatory studies and needs to allow for some subsequent flexibility, its listing of products within product categories should have

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regard to the effects this action has on both products included and those omitted. The range of expertise required for the studies is very extensive. As well as knowledge of technical aspects of the products in question, techniques for assessing energy and environmental impacts and setting appropriate requirements and understanding of market considerations, studies require an institutional knowledge of policy frameworks and administrative processes to ensure that proposals have taken the appropriate policy context into account and are making proposals that are realistic. This is probably too much to expect from a single team of consultants engaged to conduct a preparatory study.

- While the Ecodesign Consultation Forum is generally thought to work well, there has not been a Call for Expressions of Interest relating to Forum membership since 2006. The detailed rules for appointing CF members are not published.
- Given that the process for determining requirements is taking too long and is seen to involve repeated discussions of similar issues, it is necessary to consolidate and build on the knowledge and experience accumulated, through institutional changes and more systematised procedures, including guidance and standard templates for working documents and responses.
- It is believed by environmental NGOs, in particular, that a more systematic approach could be developed to making an assessment of the impact of Implementing Measures on the environment and the market, as required by Article 15.6 of the Directive. This would have to be supported by more consistent data collection.

So far, while there have been product information requirements under the provisions in the Directive for Generic Requirements no use has been made yet of Generic Requirements in combination with performance standards to provide a presumption of conformity or to require manufacturers to establish product eco-profiles.

The methodology used to develop proposals for Implementing Measures (MEEuP) is being revised currently, notably to take account of the focus on Energy-related Products, and is subject to consideration in another forum. Nonetheless, there are some aspects that are of particular interest for the operation of the Directive:

- The EcoReport tool used by MEEuP has led to an emphasis on energy impacts in the use phase. It remains to be seen whether or not other environmental considerations are more effectively taken on board by the revised methodology.
- The data analysis and the assumptions used, particularly in the eco-report tool, are not always as clear as they should be. This critical part of the analysis needs to be as open as possible to challenge.
- The systematic assumption by MEEuP that all existing legislation is fully implemented is wrong and tends to undermine the impact of requirements beyond the energy in use stage. For example, assuming a full compliance with RoHS and WEEE has led to neglecting materials and end of life impacts.

The particular problem experienced by Norway with the use of a primary energy factor (PEF) of 2.5 for electricity has been raised by Norwegian stakeholders, given their country's use of hydroelectricity and the absence of a gas infrastructure. This issue has been taken up by Business Europe.

The following are possible actions that could be taken to follow-up the conclusions on processes that lead to Implementing Measures.

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Possible actions arising from the conclusions on processes that lead to Implementing Measures

- Ensuring co-ordination with other policy instruments, notably legislation such as the WEEE and RoHS Directives and the EPBD and CRP, is critical. This suggests that the Commission should consider how existing co-ordination mechanisms can be reinforced. Attention should also be paid to identifying and addressing situations where less than full compliance with the requirements of other instruments is undermining the overall anticipated impact of the policy package.
- Reducing uncertainty for industry should be a major operational objective for all concerned with and supported by improvements in practice, such as more precision on the products to be covered and supplying information on what the requirements are likely to be and the time frame over which they are likely to apply.
- Attention needs to be paid to the time taken from Working Plan to Implementing Measure and steps taken to improve performance. Proposing a timetable and milestones for each product would help to focus attention on performance in this area and developing more systematised procedures, including guidance and standard templates for working documents and responses would also help.
- The inadequacy of Commission resources is a key factor in the delays in adopting Implementing Measures. It needs to be addressed and consideration given to the observation that expenditure on good quality research at an early stage can save time and expense for everyone subsequently.
- The Commission should publish an explanation about the procedures for gaining membership of the Ecodesign Consultation Forum on its web site.
- There is a need for more consistent data collection and monitoring of market developments.
- An appropriate forum should be found for addressing the particular problem faced by Norway (with the primary energy factor).

3.4.3 Implementation of the Directive on the ground

Conformity assessment and role of standards

In order to place any energy related product on the market, manufacturers (or the authorised representative) have to assess the product's conformity with all the relevant requirements of the applicable Implementing Measure. Assessment of conformity can be based on an internal design control or the establishment of an appropriate management system (requirements set out respectively in Annexes IV and V of the Directive). As a general rule conformity assessment in the context of the Ecodesign Directive is based on self-assessment, with limited reliance on third party certification in order to reduce compliance costs. Implementing Measures may define conformity assessment procedures in line with the modules described in Decision 768/2008¹⁷⁶. Presumption of conformity can be provided by the use of harmonised

¹⁷⁶ Decision 768/2008/EC (<http://eur-lex.europa.eu/Lexuriserv/Lexuriserv.Do?Uri=OJ:L:2008:218:0082:0128:En:PDF>). It determines the obligations of economic operators when placing product in the market, specifies the various conformity assessment procedures and requirements. Furthermore, it determines procedures for the removal of

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standards developed by the European standardisation bodies to measure the performance of products against the minimum requirements. Similarly, the establishment of environmental management systems that cover product design by an organisation registered under a Community eco-management and audit scheme (EMAS) or the European Eco-label can be used to provide presumption of conformity with the corresponding Implementing Measures where this is relevant. Other labels (Energy Star) may also be used to provide presumption of conformity on a case by case basis.

Harmonised standards developed by the European standardisation bodies have a key role in the implementation of the Directive. Test and performance standards can be used by manufacturers to show compliance with the Implementing Measures adopted under this Directive for specific product groups. In the case of generic eco-design requirements harmonised standards may also be developed to guide manufacturers. Other standards provide tools for integrating environmental aspects in product design from a life cycle perspective, templates for information supply along the chain and treatment facilities so as to minimise the impact on the environment during the use and end of life management phases respectively.

The Commission mandated the European standardisation bodies (mandate M/341)¹⁷⁷ to draw up a standardisation programme to develop an inventory of existing relevant standards and the additional standards to be developed. The two organisations provided an initial inventory^{178 179} with an indicative work programme extending over a four year period until 2010. In the period 2010-2011 additional mandates for most of the products covered by Implementing Measures were issued¹⁸⁰. However, in order to better streamline and organise the process, the Commission has decided to issue a draft horizontal mandate aiming to provide a long term view overview of the expected standardisation work and to facilitate the earlier involvement of the standardisation bodies in the decision process, starting from the preparatory studies¹⁸¹.

Evidence from Stakeholders

The feedback provided by stakeholders indicates that there are definitely problems arising from ambiguities in relation to some requirements in Implementing Measures, especially when it is not possible to refer to an existing standard. These ambiguities leave producers unclear about what they have to do in their own internal conformity assessments. A common comment, for example, arising from the survey of the Association of Swedish Engineering Industries, is that the process generating specific requirements is not a problem as such. The question is more how firms are to interpret the requirements in ensuring conformity and how to get guidance for this interpretation. Horizontal requirements are seen by some industry representatives to be a particular problem. By definition, they cannot be as precise as a vertical measure applied to a given product category. The Regulation is then subject to many kinds of interpretation by stakeholders including the Market Surveillance authorities. The best example provided is the Regulation

products on the grounds of health and safety risks. Annex ii of the decision describes alternative modules that can be used for assessment of conformity.

¹⁷⁷ http://ec.europa.eu/enterprise/policies/sustainable-business/documents/eco-design/standardisation/files/mandate_en.pdf

¹⁷⁸ http://ec.europa.eu/enterprise/policies/sustainable-business/documents/eco-design/standardisation/files/tc111x_report_en.pdf

¹⁷⁹ http://ec.europa.eu/enterprise/policies/sustainable-business/documents/eco-design/standardisation/files/cen_response_eup_en.pdf

¹⁸⁰ DG Enterprise, Standardization action plan, http://ec.europa.eu/enterprise/policies/european-standards/files/standards_policy/action_plan/doc/standardisation_action_plan_en.pdf

¹⁸¹ Standardization action plan, http://ec.europa.eu/enterprise/policies/european-standards/files/standards_policy/action_plan/doc/standardisation_action_plan_en.pdf

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on Standby and Off-mode losses (1275/2008). Even if the intentions of the policy makers have been clearly understood by the manufacturers, they still have to spend a lot of time in assessing and anticipating the risk that they may be considered to be non-compliant through the interpretations of particular Market Surveillance authorities. Clear guidance is needed at a European level to reconcile these interpretations, especially in the case of horizontal measures. Guidelines published by the European Commission on difficult Implementing Measures (e.g. standby, TVs) and assistance compiled by the ADCO group on market surveillance both provides a means of addressing this problem, but are either not sufficiently extensive or have yet to be utilised by producers and surveillance authorities.

Some see a solution in making the Ecodesign Directive closer to the processes used for new Approach Directives and in a greater use of standards. This would mean that companies could be more involved in the work, the processes would be more familiar to the companies and global harmonisation of requirements could be achieved more quickly. Others, in contrast, believe that, in the environmental area, standards cannot replace regulation, since the former are largely determined by industry in practice and there is a need for a broader consensus with environmental targets and ultimately a political decision. However to reinforce this process it is suggested that right from the preparatory study, the requirements should focus on measurable criteria that can be enforced easily. This would avoid the need for subsequent guidance documents, whose legal status always leaves room for doubt.

Outside the EU in the past legislation setting of minimum standards on the energy efficiency of products (that may be regarded as similar to the Ecodesign Directive in the EU) is often was often implemented with detailed measurement standards the development of which was led by Governments directly rather than the standardisation bodies, equivalent to CEN or CENELC in the EU. Increasingly as it is possible to refer to international standards, this practice is being dropped, but in countries like the USA and Australia the view has been that measurement standards are a key and intrinsic part of the development of effective "Ecodesign" type policies.

When they exist, standards do make an important contribution to the successful implementation of the Directive. The case of boilers illustrates the problems that can arise in the development of requirements, when standards are not available. On occasions, however, standards can be applied too rigidly. There are cases (e.g. vacuum cleaners) where, according to some stakeholders, the Implementing Measure essentially copies the standards and this is too prescriptive.

Most stakeholders believe that there are important gaps in most categories of product (nearly all with the exception of motors, fans) and that the standards development process is quite slow. The transitional arrangements that have been put forward on a number of occasions have been helpful but are not ideal and cannot replace standards. The process of standards development needs to start earlier on and be better integrated with preparatory studies. The draft horizontal mandate presented earlier in 2011 attempts to address this problem and appears to have the support of the standardisation community that in principle is in favour of an early involvement in the process. Still, additional action is considered necessary:

- There is a need for the standardisation bodies to achieve greater co-ordination with the IEC, where international standards are developed, since this is where manufacturers focus
- The assessment of the environmental (or even wider sustainability) characteristics of products is missing in the development of technical standards. Greater use could be made of the relatively new development of environmental characteristics for products in line with CEN TC350 standards (prEN15804).

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More generally, in relation to conformity assessment, the following points have been made:

- Some Member States do not have accredited laboratories for the testing procedures and so the cost of testing can be very high.
- It has been claimed by a minority of industry representatives that authorities in certain countries may request extensive testing which may not be necessary and represents an additional cost.
- Tolerances allowed in testing are still thought to be too large by a number of contributors, undermining the whole approach. Tolerances ought to be based on normal statistical methods and these are likely to be lower than those set in Ecodesign measures.
- Generally, there is a concern about the costs of testing. Member States that cover the costs of testing believe it to be the determining factor in how effective a market surveillance system can actually be.
- There are doubts about the qualifications of some designated laboratories.

Market surveillance and enforcement of the Directive

‘Market surveillance’ is defined in the Directive as ‘the activities carried out and measures taken by public authorities to ensure that products comply with the requirements set out in the relevant Community harmonisation legislation and do not endanger health, safety or any other aspect of public interest protection’. The New Legal Framework Regulation 765/2008/EC¹⁸² has established the current system for market surveillance by the Member States. It sets requirements for accreditation bodies, the establishment of the necessary surveillance infrastructure and the development of surveillance programmes, the types of check to be performed, the exchange of information among the responsible national authorities concerning products that do not conform to EU regulations and other procedures to ensure an effective surveillance of the market.

The establishment of the necessary structures and mechanisms at the Member State level to ensure effective market surveillance and the enforcement of the requirements of the Directive and the Implementation Measures is a major determinant of the overall effectiveness of the Directive and the achievement of the policy objectives set. Without a credible enforcement regime, the efforts of compliant firms are undermined. The market conditions become more uncertain, firms potentially suffer cost disadvantages and these act as a disincentive to the commitment of compliant firms to environmental objectives and to further improvements.

The evaluation questions that are relevant in this area are:

- Have Member States correctly transposed the framework Directive and established the required competent authorities?
- How effective is the surveillance of the market by Member States across the EU? Have the appropriate market surveillance mechanisms for cooperation been established and are they effective? Which, if any, are the barriers to effective application of the Directive?

¹⁸² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:218:0030:0047:en:PDF>

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- What is the level of conformity with the Implementing Measures? Are there free-riders on the market supplying non-complying products and if so, to what extent?
- Are stakeholders well informed on how to interpret and apply the Directive?
- Are adequate resources allocated to authorities in view of effectively implementing the Directive?
- Are there any impacts of Regulation 765/2008/EC and Decision 768/2008/EC on the application of the Directive?

Analysis of evidence

Generally, it was clear from the response to the survey and from a range of interviews that most stakeholders believe that there is a compliance problem. Market surveillance by Member States authorities across the EU is seen as ineffective by 32% of respondents and 'very ineffective' by 23%. Moreover, the large majority of respondents (73%) indicate that the application and enforcement of the Directive is not uniform across the EU. This expression of opinion is in line with evidence from other surveys, such as the feedback provided in the consultation on the Action Plan on Energy Efficiency in 2009, which had suggested that market surveillance in some Member States is a significant weakness.

In commentary, many refer to anecdotal evidence that suggests that there are non-compliant goods on the market, especially as imports from outside of the EU, and repeat the view that market surveillance is not effective, although they also acknowledge that the situation varies across the Member States and that some countries have stronger market surveillance systems than others. Some suggest that the problem is partially one of communication. Firms can still be unaware of what is required, especially if they are not members of an industry association. Importers of goods from third countries often deal with a range of products and may not know what is required in each particular product. There is also a potentially growing problem with goods bought over the Internet from outside the EU. Clearly, however, the perception is that there are firms that deliberately ignore the regulations, when putting new products on the market

More evidence on compliance and the results of surveillance testing is gradually emerging. In addition there is some older evidence in the form of relatively well-known studies that mainly relates to labelling rather than Ecodesign Regulations. From this a fairly consistent picture is beginning to emerge:

The most direct evidence is in the form of reports on surveillance activity. The evaluation team has seen reports from two Member States – the UK and Denmark.

- The UK's Department for Environment, Food and Rural Affairs (DEFRA) has a policy of conducting compliance tests and publishing the results on its website, often with the identification of individual models and brands. In relation to labelling, DEFRA estimated that in 2010, the rate of non-compliance in the UK was around 10 to 15% at manufacturing level (failure to meet the claim on the label) and 20% at retail level (absent or incorrect labelling).
- More recently, the UK's National Measurement Office, which is the surveillance authority for the Ecodesign Directive and related legislation (including energy labelling), has undertaken compliance projects and has published the results of those completed in the course of 2011¹⁸³. Projects have

¹⁸³ <http://www.bis.gov.uk/nmo/enforcement/ecodesign/news-and-events>

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examined the labelling of washing machines and fridges and freezers and the compliance with Ecodesign requirements in the case of televisions, audio-visual appliances and domestic lighting.

- Of the eight washing machines tested, half performed to a lower standard than was claimed and after the study of fridges and freezers; the NMO prosecuted one company, for labelling as A-rated a chest freezer whose performance actually rated F. Of the 20 televisions tested, one failed on standby and the other three failed on peak luminance performance. And, only 15% of the televisions would be compliant under future requirements. 7 DVD players and 3 Blu-ray players were assessed for standby/off mode compliance. 100% were compliant with the current requirements, though 85% of the DVD players would be non-compliant under future requirements.

The Danish surveillance authorities are likewise responsible for both energy labelling and the Ecodesign Directive. Because of the expense of testing appliances, they have a dual approach to their surveillance activity, examining required documentation (technical documentation and CE-declarations) as a complementary measure to actual testing. This has a number of advantages, allowing a much greater presence on the market and helping to guide the targeting of laboratory testing, among others. The scale of both documentary examinations and testing has increased significantly in 2011 and the full programme has not yet been completed. The Danish authorities were able, however, to provide the evaluation team with a paper prepared for a meeting of Nordic authorities in October 2011¹⁸⁴, which, together with some supplementary material sets out some of the results:

- For the standby product group, of the 26 products whose documentation was checked, 96 % passed, while of 10 products that had laboratory testing 80% passed.
- For the other product groups, the process has not been completed, but of the 20 televisions and 20 cold appliances already checked, 10% failed the documentation check and a higher proportion of the 12 cold appliances that had laboratory testing also failed this test.

Many of those responsible for placing products covered by Ecodesign regulations on the Danish market are importers, often of goods from outside the EU. It was clear to the authorities that many were not aware of their obligations and in fact used the notification period to assemble the necessary documentation. The documentation pass rates should therefore be seen in this light.

A more extensive study is being undertaken by CLASP (the Collaborative Labelling and Appliance Standards Program). CLASP is an independent, non-profit organisation, originating in the United States, but promoting Energy Efficiency Standards and Labels (S&L) for appliances, equipment, and lighting around the world. The study in question is looking at the transposition and implementation of both the Ecodesign and Energy Labelling Directives in each of the EU and EEA Member States, the institutions involved in monitoring and compliance and their capacities, the frequency, type and scale of compliance testing being undertaken and the degree of non-compliance found. It is also examining the nature of non-compliance procedures and penalties imposed. Unfortunately, this study has not yet been published, but some of the preliminary findings were presented to the second Stakeholder Meeting:

- There are only about 80 full time equivalent staff working on Ecodesign and Energy Labelling compliance administration in the 30 EEA Member States and perhaps the same level are involved in store inspection to ensure labelling compliance

¹⁸⁴ Sekretariat for Ecodesign og Energimærkning af Produkter 'Notat om dokumentkontrol for Ecodesign og Energimærkning af produkter i Danmark' Oct 2011.

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- Non-compliance levels are often not known or are not reported when they are known but it appears that more than 10% of the energy savings potential from Ecodesign measures is being lost
- Penalties for non compliance are often weak and are likely to be weak deterrents. The average maximum imposable fine (where specified) is just €41k and can be as low as €320
- Only 17 countries possess accredited test laboratories and only seven were conducting energy compliance testing for more than one product type
- Across the EU/EEA there are about 800-1400 product energy performance compliance tests done per year out of a market of billions of product shipments.

Earlier studies show that these results are part of a consistent pattern, but also give some indications of movement in the surveillance process:

- In 2007, Defra in conjunction with the European Association for the Coordination of Consumer Representation in Standardisation (ANEC) published a report on compliance with EU label regulations¹⁸⁵. The study had found an average of 20-30% of appliances in shops were not labelled, that only three of the nine countries studied could present figures about in-store inspections, and that only four of the nine countries asked for corrective action in writing after the discovery of unlabelled appliances.

Clearly, the situation may have improved recently, but the study's general conclusions are still valid, namely that poor monitoring is a key barrier to the successful implementation of the labelling scheme and that a significant factor contributing to low monitoring is the small budget (in monetary and human resource terms) often allocated to monitoring activities.

- The ATLETE project, funded under the Intelligent Energy Europe Programme (IEE) was designed to demonstrate that market surveillance and testing can be done in a systematic, effective and cost-efficient way. It has developed guidance for surveillance authorities on practical procedures, but in the current context is particularly interesting in that it has conducted pan-European testing on a large number of refrigeration appliances, primarily in relation to labelling requirements.
- 80 appliances, from 40 producers, available for purchase across the European Union, were tested for their energy label declaration. Each appliance was tested according to five parameters (energy consumption, storage temperature - including the climate class - storage volume, freezing capacity and temperature rise time). If the declared values were found not to be within the accepted testing tolerances, a second round of testing was undertaken, using stricter tolerance thresholds. Test results currently available show that 84% of appliances complied with the energy efficiency class declaration and the two related key parameters: energy consumption and storage volume. When all five parameters were taken into consideration, the rate of compliance declined to 47%.
- The SELINA project has examined Off-mode and Standby energy losses in new products and has tested the effect of the introduction of Regulation EC 1275/2008 in 12 different countries. 5844 different pieces of equipment being sold in shops were measured in the project, covering 140 different products

¹⁸⁵ ANEC and Defra (2007), A Review of the Range of Activity throughout Member States Related to Compliance with the EU Energy Label Regulations in those Countries, ANEC-R&T-2006- ENV-006, Final Report, January 2007.

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in five main product categories: kitchen devices, communications, entertainment, office appliances and accessories.

- It was found that 17 % of the appliances whose off-mode power was measured do not respect the EU regulation threshold of 1 W. For standby mode consumption, 28 % of the measured products did not comply with EU regulation limit for 2010. The figures in relation to the 2013 threshold were 38 % and 59 % respectively. It should be noted that some of the appliances were tested before the first set of new thresholds came into effect at the end of 2009 and therefore technically did not breach the requirement. The figures nonetheless give some indication of the state of the market in the period of transition.
- Since the measurement campaign started in 2009 and ended in June 2010, it was possible to observe if the Market Surveillance Regulation entering into force in January 2010 had any immediate effect. A slight decrease of the share of appliances exceeding the EU regulation limits was observed.

Although much of the work mentioned above focuses on labelling, altogether it is indicative of a shortfall in compliance that supports the perceptions of stakeholders. There may have been some improvement in compliance over time, but there remains a non-compliance level of least 10 – 20% overall with higher levels in some products. This level is significant enough to raise serious concerns about the effectiveness of enforcement of the regulations by Member State authorities.

Various explanations of the weaknesses in market surveillance were offered by stakeholders, including some from organisations directly responsible for surveillance. There were also some possible routes to improvement suggested:

- All Member States, with the exception of Greece, have formally notified the Commission of the authority responsible for market surveillance, though it is not clear in all cases that responsibility has been effectively assumed by the nominated institution.
- The level of co-operation between Market Surveillance authorities is low and varies from country to country
- Many authorities have a lack of experience of the Ecodesign Directive specifically and restrict their activity to checking energy labels
- Many countries do not have accredited test laboratories for the whole range of products currently covered under the Directive. While some countries use laboratories elsewhere, this is a considerable constraint on compliance testing.
- There is a tendency of surveillance authorities, when they are also responsible for product safety, to give priority to safety issues, because of their higher public profile. This may arise because in contrast to safety requirements, there is no risk of financial liability and loss resulting from non-compliance
- Some Member States use their own national interpretations of requirements and of practices that are not derived from the Directive (often relating to former national procedures) – these are issues currently being addressed in the ADCO work on the harmonisation of enforcement activities
- There is consequently a disincentive and cost to firms trading in different Member States
- The level of resources and legal structures for Market Surveillance are insufficient in some countries

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- There are insufficient checks in relation to imported goods from outside the EU
- The cost of testing is high
- Penalties for non-compliance are not a sufficient deterrent.

The CLASP study referred to above is reported as calculating a twentyfold return on investment in surveillance, in terms of the value of energy savings from effective enforcement.

From the point of view of some Member State authorities, the key constraint is clearly the absence of the necessary financial resources to support the enforcement of the Directive and the establishment of the appropriate structures. Data provided by some Member States indicate annual costs equal to 3-5 officials covering all aspects of surveillance and enforcement, plus costs for testing, studies and other technical analysis (over €300,000 per annum) in addition to the inspectors on the ground (another full-time equivalent). However, since it is widely reported that surveillance activity in some Member States is not as developed as it should be, estimates of the actual cost of surveillance should be scaled down somewhat. In addition, most surveillance authorities are responsible for both the Ecodesign Directive and Energy Labelling and the same people are often involved in both. Among the 26 countries responding to a survey conducted by the ATLETE project, 18 indicated that their authorities are responsible for both areas, 4 said that responsibilities are divided and in 4 the responsibility for the Ecodesign Directive had still not been allocated. While more work has previously been done on labelling, estimates of current workload indicate that the split is now 60:40, in favour of the Ecodesign Directive.

On the basis of the above, 2 FTE at an average cost of € 80,000 gives an estimated staffing cost of € 160,000 per annum per Member State. Furthermore, with study and testing costs of € 350,000, the estimated total annual costs of surveillance -without institutional overheads- is €510,000 plus additional non-staffing administrative costs of actual enforcement (court costs etc). These costs relates to surveillance and enforcement only.

One Member State authority pointed to the trade-off between staffing and testing, as a consequence of a fixed overall budget for enforcement. Given the expense of some individual tests, ways of reducing this element of expenditure, through the development of in-house facilities or particularly through the sharing of test results is thought to be an important consideration. Some concern was also expressed about the need for surveillance of a growing number of products. With budget restrictions in many countries, there is a prospect of spreading a stable or even declining quantum of resources over a greater number of products. This will strain confidence in the system still further.

The significance of effective enforcement has been emphasised by other work undertaken by CLASP, notably in its 'Practitioner's Guidebook'¹⁸⁶. Based on international comparisons, the Practitioner's Guidebook comments that investment in compliance and enforcement regimes is 'likely to be one of the most cost effective means to increase the environmental impact of S&L programmes in the short and long terms', while also remarking that there is a corresponding risk that failure to address issues of non-compliance can lead to serious long-term consequences through the erosion of consumer confidence.

¹⁸⁶ Mark Ellis & Associates in Partnership with the Collaborative Labeling & Appliance Standards Program (CLASP) 'Compliance Counts: A Practitioner's Guidebook on Best Practice Monitoring, Verification, and Enforcement for Appliance Standards & Labeling' Sept 2010

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However, feedback from the various sources has also suggested ways in which the situation might be improved, largely within existing resources. In particular there appears to be a willingness among Member State authorities to co-operate more, and more effectively.

The responsibility for market surveillance and enforcement lies with the Member States. Article 3 of the Directive says that ' Member States shall take all appropriate measures to ensure that products covered by Implementing Measures may be placed on the market and/or put into service only if they comply with those measures and bear the CE marking in accordance with Article 5.'

However, this does not prevent national authorities from co-operating with each other to increase the effectiveness of their actions. In fact, the Directive envisages such co-operation in Article 12 of the Directive, with the Commission encouraging and contributing to this co-operation.

Such co-operation has already taken place to a limited extent. The Ecodesign Administrative Cooperation group (ADCO) made up of the Market Surveillance Authorities of all EU Member States has been established to improve co-operation in the implementation and enforcement of the Directive and in particular is discussing better co-ordination of product testing. The Commission is assisting these moves with the development of a database of cases and through the possibilities presented by programmes such as Intelligent Energy Europe, under which a number of surveillance authorities have submitted a proposal for a project exploring how co-operation can be improved. One of the issues with this sort of project, however, is that they mainly involve Member State authorities that are already relatively active in the enforcement area.

The Stakeholder Meetings, interviews and written comments in the survey all indicate a general agreement that still more could be done to improve surveillance and enforcement, especially in the following areas:

- **Registration:** for some products in Europe, such as chemicals and fertilisers, some Member States already require registration before a product can be put on the market. This can be done easily on-line, especially if a common format is agreed, and would mainly consist of the information already required in the declaration of conformity. It would involve a negligible administrative requirement. Such a system is already in operation in Australia for products within the scope of energy efficiency regulations. The benefits are that, as well as contributing to market monitoring in general, surveillance authorities would be in a much better position to plan and carry out their work and the benefits of more open information on market developments referred to in the Directive, would be more readily apparent.
- **Examination of documentation:** given the expense of laboratory testing, a useful complementary activity that can be carried out by surveillance authorities at a much lower cost is to request producers to provide them with copies of the required technical documentation and CE declaration. This is not a substitute for full testing, but can raise the profile of enforcement activity, prompt compliance by producers and help to direct testing to areas of difficulty.
- **Sharing investigation results:** especially for products on the market in different Member States, the sharing of information on product conformity checking and testing could greatly reduce costs and assist enforcement, but although this is one of the aims of the ADCO group, the effects of this co-operation have still to be felt.
- **Information requirements:** surveillance and testing would be much easier if the relationship between similar products were clearer. Suppliers of products should be required to specify (in conformity statements and when registering) the relationship between original and daughter products, especially

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when variants are introduced for particular markets. Differences in performance in relation to Implementing Measure requirements should be distinguished from differences relating to other aspects of the product or simply name differences.

- **Penalties for non-compliance:** These are said to be weak or meaningless in many cases. A review and comparison of penalties imposed by Member States should be undertaken and kept up to date.
- **Engagement of industry and consumers:** Article 3.4 of the Directive says that Member States shall ensure that consumers and other interested parties are given an opportunity to submit observations on product compliance to the competent authorities. However, this aspect of enforcement is considerably less developed than in the United States, where industry plays a significant part in enforcement by being able to challenge the conformity of competitors' products. This system is said to work well.
- **Enforcement information at a national level :** The practice of the UK authorities of publishing the results of surveillance tests prominently in easily accessible web sites, not only gives a higher profile to the activities of the surveillance authority, prompting compliance by producers and where necessary 'naming and shaming'; it also promotes engagement by consumer groups and civil society organisations and could begin to promote their more active involvement in supporting effective enforcement.
- **Facilitating compliance:** a point made by CLASP is that taking steps to facilitate compliance by suppliers is often overlooked, yet it is one of the least expensive and easiest ways to increase compliance rates. This is mainly a matter of communication, education and training among producers and importers of the relevant products and has the advantage of encouraging active engagement in the regulatory process and anticipation of regulatory requirements.

Conclusions of the Evaluation Team on Market Surveillance

The basic conclusions on the efficiency of market surveillance are clear:

- The perception of most stakeholders that a significant proportion of products (10-20%) on the market do not comply with Ecodesign Regulations appears to be supported by the emerging evidence
- Those responsible for placing products on the market, especially importers, require further assistance to help them to comply
- In many Member States, there is insufficient surveillance conducted and a shortage of testing facilities
- There are a series of practical steps that can be taken, without incurring major expense, to improve the efficiency of the market surveillance of products covered by the Ecodesign Directive
- Although each Member State is responsible for market surveillance in its own territory, there is a lot of scope for productive co-operation between Member States and this could usefully be supported by the Commission.
- In addition, particularly by publishing the results of their surveillance activities, Member States can start to engage industry and civil society in reinforcing enforcement of the Directive.

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Some of the implications of this situation need further consideration. Failure to enforce legislation can undermine its whole credibility, as well as representing, in this case, a lost opportunity to reduce energy use and other environmental damage. Eventually it can even undermine the commitment of producers who want to see innovation and improvements in their products, by allowing their efforts to be frustrated in the market place. In this and other ways, it acts as a brake on market developments slowing the pace of change. Effective enforcement is therefore a major element in the whole policy package.

Given that there are doubts about the effectiveness of Ecodesign surveillance currently, the question has to be raised as to what the likely consequences are of an increased responsibility, as more products are covered by regulations, both under the current Directive and with any possible extension.

It may be that the additional responsibility will allow some economies of scale or even trigger a reallocation of resources to ensure that Ecodesign products are covered properly. The returns on this type of investment might encourage such a response. On the other hand, if additional responsibilities are to be added, without any increase in enforcement capability, a poor situation will become even worse and may severely undermine the effectiveness of efforts being devoted to elaborating requirements.

Suitability of the procedures for SMEs

Costs of compliance, both in terms of investment in production processes and of administrative overheads can be much more significant for SMEs in that they represent a much higher proportion of turnover. It also has to be remembered that for many SMEs incorporating environmental thinking into their planning and operations, and especially adopting a life-cycle perspective, still involves a fairly fundamental change in the firm's culture. Some require expensive assistance from consultants to inform them of new developments and to help them adjust to new requirements. Sometimes this is perceived to involve unnecessary costs, in the sense that 'advice' prompts them to go further than the actual requirements, though there may be good reasons for this, including gaining a competitive advantage, preparing early compliance to future more demanding tiers, marketing benefits, etc).

There are also other aspects of the implementation of the Directive that particularly affect SMEs. Naturally they find it more difficult to participate in stakeholder discussions and are often not members of industrial associations. They are therefore particularly affected if developments after the Working Plan are protracted or take unexpected directions or if there is poor information provided about what is happening.

Those who press for changes in important details of the proposed Implementing Measures at a late stage in the process should be aware that their action could have a particularly adverse effect on SMEs that are attempting to respond to the proposals set out in the preparatory study.

It has been pointed out in a number of comments that as the programme of the Working Plan is followed through, it is increasingly moving into markets where there are more suppliers and where more of these are SMEs. This highlights the increasing need, for instance, for the MEEuP analysis to include a good assessment of the structure of the market under Task 2 and to have an explicit consideration of the impact of prospective Implementing Measures in Task 8.

Formal involvement of SMEs in consultations also needs to be assisted with practical measures. The circulation of complex technical documents in English shortly before important meetings does not help SMEs or their organisations to react properly, especially when documents have to be translated and technical advice is required. Timely distribution of documents and highlighting salient points in a way that allows translation to be done quickly can help to support more effective participation by SMEs in the consultation process.

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3.4.4 Role of voluntary agreements

The main evaluation question that is relevant in the case of voluntary agreement is:

- What has been the role of Voluntary agreements/Self-regulations? Are they effective and cost/resource efficient? Do they fulfil the criteria of Annex VIII?

Background

The Directive envisages that self-regulation by the industry should be considered as an alternative to the adoption of regulation, if it is in line with the policy objectives. By allowing flexibility in the implementation of the policy, self-regulatory developments can be particularly appropriate where rapid technological progress occurs.

In practice, when considering whether to prepare a draft Implementing Measure, the Commission is firstly required to examine the presence of relevant self-regulation, such as: Voluntary Agreements or other measures adopted by industry, taking into account that in some cases self-regulation is likely to deliver the policy objectives faster and in a less costly manner than mandatory requirements and allow flexible and appropriate adaptation to technological solutions and market sensitivities. The Directive refers explicitly to self-regulation (Article 17) and also lists the criteria to be used to evaluate self-regulatory initiatives as a possible alternative to Implementing Measures (annex VIII). Stakeholders represented in the Consultation Forum (Article 18 of the Directive) are expected to contribute to the assessment of voluntary agreements and other self-regulation measures. Furthermore, in response to requests from stakeholders, in March 2010 the European Commission produced a document in March 2010 developing guidelines on the minimum criteria that VAs has to fulfil to be accepted as a substitute for mandatory Ecodesign requirements.

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It should be noted that the evidence so far on the actual use, and even more on the effectiveness of Voluntary Agreements, is rather limited. Voluntary agreements have been proposed for four products categories; complex set top boxes (CSTBs), imaging equipment, machine tools and medical imaging equipment¹⁸⁷. The case of complex set top boxes is the one that is most advanced, A proposal has been submitted and is being discussed with the Commission, which has published some conditions before there can be an endorsement of the initiative. Imaging equipment is under discussion, but there is no final agreement on imaging equipment either. An early draft has been developed for machine tools which will be re-discussed when the preparatory study is completed and medical imaging equipment has, still a way to go before any final stage or endorsement). In the case of medical imaging equipment, the industry came forward with a proposal without the specific category being included in the list of products in the Working Plan or that of the transitional period and with no preparatory study conducted. As a result, the analysis focused more on the procedural issues and aims to identify key issues and parameters for success in relation to the development of the VA.

The views of stakeholders concerning the adequacy of Voluntary Agreements towards achieving the objectives of the Directive vary a lot. In total 54% of the 61 that responded to the survey considered that Voluntary Agreements are adequate or 'very adequate' while 38% consider them 'inadequate'. However, there are clear differences depending on the type of stakeholder. The majority of Member States (and

¹⁸⁷ http://www.eceee.org/Eco_design/process/Voluntary_Agreements/

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environmental groups) do not consider voluntary agreements appropriate. The comments provided suggest that the main issues are that Voluntary Agreements tend not to set sufficiently stringent requirements from the environmental perspective in relation to the business as usual scenario and do not bring better or quicker results than a Regulation. In all cases the initial proposal from industry had to be revised in order to improve the organisational set-up and transparency rules and provide savings commensurate with those that were possible with a regulatory initiative. In addition, there are criticisms from some Member States and NGOs about the transparency of the procedures for initiating and establishing Voluntary Agreements and important questions on the monitoring of compliance from the side of industry. Voluntary Agreements are thus considered appropriate by these stakeholders only as complementary to regulation, especially when they are aiming to address issues and aspects that Implementing Measures cannot effectively address.

From the point of view of industry representatives, there is in general a more positive approach towards Voluntary Agreements (71% among industry associations) because of the flexibility that they provide in comparison with Implementing Measures, although in some cases this might be regarded as more a statement of principle than a view based on actual experience in recent attempts to formulate Voluntary Agreements. A large number – even among those with a positive view - expressed concerns about the actual capacity of the industry to reach agreements and, even more, their capacity to enforce them in a way that will ensure fair competition and avoid free-riders.

Table 3.41 - Adequacy of voluntary agreements as a mechanism to achieve the objectives of the Directive (n=61)

	European/national industry association	Individual manufacturer	Member States	Environmental/consumer groups	Experts	Total
Very/quite adequate	17 (71%)	7 (50%)	3 (25%)	-	-	27 (44%)
Neither adequate not inadequate	2 (8%)	-	-	-	2 (25%)	4 (7%)
Completely/rather inadequate	3 (13%)	5 (36%)	5 (42%)	3 (100%)	3 (38%)	19 (31%)
No opinion/Don't know	2 (8%)	2 (14%)	4 (33%)	-	3 (38%)	8 (18%)
Total	24	14	12	3	8	61 (100%)

Source: CSES survey

The discussions suggest that Voluntary Agreements cannot work for all products and sectors. A key aspect is the capacity of the industry to bring together the necessary market coverage and this depends on the industry structure. Thus, in the case of complex set top boxes, the vertical structure of the industry and the involvement in the Digital Interoperability Forum of the final service providers - the ones that actually select the products sent to the final consumers - is regarded as a key factor. In other sectors, with a much larger number of actors, Voluntary Agreements are much more difficult to achieve and even more difficult to enforce. Industry stakeholders and NGOs also refer to the possible dangers of free-riders.

The advantage of the flexibility of the Voluntary Agreements is also relevant for sectors where technologies are rapidly changing or where there is a large range of products with different characteristics and where a single set of requirements may prove problematic, assuming of course that such arrangements deliver real

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improvements in performance overall and succeed in excluding the worst performers from the market. In relation to the first issue Voluntary Agreements gives the opportunity to manufacturers to focus on high volume products and exempt products in niche markets or with niche technologies. This, according to the industry, is the case for Imaging and Medical Imaging Equipment. In the latter the Voluntary Agreement approach also offers the flexibility to integrate requirements in relation to additional functions over time. Concerning the variety of products, in the case of machine tools, CECIMO argues that the Voluntary Agreement route provides the necessary flexibility to adopt a modular approach where complex machine tools will be split into different modules on the basis of a series of potential improvements for the whole product that will be identified and adopted by manufacturers. They argue that adoption of mandatory requirements applicable to all products cannot provide the necessary flexibility. From the efficiency side, there are certain benefits in terms of the resources required for seeing a Voluntary Agreement through to endorsement. From the Commission side, the difference in resources needed appears to be rather limited. The full involvement of a Commission officer in the development phase and the conduct of a preparatory study are most often necessary. Furthermore, the overall duration of the process is not always much faster. In the case of complex set top boxes and for medical imaging equipment the process lasted around 3 years. This, purely in terms of timing (not benefits delivered), compares rather favourably against the 4 year average for Implementing Measures. However, in the case of imaging equipment, the preparatory study was launched in 2006 while a first proposal for a Voluntary Agreement was submitted in 2009. Still, there are certain savings for the public authorities, given that the industry assumes the responsibility for developing the proposals bringing together the key market actors and, when the Voluntary Agreement is in force, collecting and independently verifying the necessary data to ensure compliance. It remains to be seen how well this last process will operate. There will also be a challenge for market surveillance authorities who will still to make undertake some tests to verify the credibility of the self-declaration scheme.

Assessment of cost-effectiveness of the Ecodesign Directive. In this section we bring together the information available on the costs but also compare them with the expected benefits from the implementation of the Ecodesign Directive in order to assess the cost-effectiveness of the Directive. We should note though that it has not been the objective of the evaluation to provide a detailed cost-benefit analysis of the Directive.

There has already been reference to the costs incurred by stakeholders at several points in the preceding sections. It has not been a primary objective of the evaluation to undertake a systematic analysis of the respective costs and benefits associated with the Directive. Nonetheless, as part of commenting on the efficiency with which the Directive is operating we present here estimates of the costs of implementation.

The costs elements identified are as follows:

- Developing the Ecodesign Framework :
 - The initial administrative cost of adopting the Directive
 - The process leading to the Working Plan
 - Monitoring & evaluation
 - Review and revision
- Development and revision of the Implementing Measures
 - Preparatory studies
 - Consultation & decision-making
 - Preparation of standards
 - Other supporting studies and technical analysis
- Implementation & Enforcement of the Regulations

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- Adaptation by enterprises of products and production processes
- On-going compliance costs
- Market surveillance & enforcement

Different stakeholders incur these costs at different points:

- The Commission: contributions in all three areas listed above and including inputs from the JRC and other bodies close to the Commission
- The Member States : contribute to the development of the Directive and the IMs and have prime responsibility for surveillance and enforcement
- Enterprises : adaptation of products and processes, but also compliance costs and inputs into consultation processes
- Business Associations : Inputs particularly into the second area, but also into consultation and lobbying on the legislative framework and monitoring of implementation
- NGOs : Inputs particularly into the second area, but also into consultation and lobbying on the legislative framework and monitoring of implementation

A systematic analysis of enterprise costs has been beyond the scope of the current study. Estimates of the costs to business associations and NGOs are also relatively sketchy and are likely to remain so. Broad assumptions will have to be made about the cost of these inputs.

Costs to the Commission and Member States

The analysis of the costs to the Commission and the Member States has been based on the following assumptions:

- The estimates distinguish between costs incurred during the 6 year period up to now (2005 – 11) and the costs for a period of similar duration (2012-2017). The cut off point is possibly arbitrary but the periods allow for distinctions between what has already been incurred and what is projected for a reasonable time into the future, while recognising that there is increased uncertainty as we move beyond a certain period.
- An initial assumption of 10 new products resulting from the second working plan has been made. This is based on discussions with the Commission. The conclusion of the second working plan will provide a better base for estimating this number.
- A fix number of Commission staff for each period has been used for the initial calculation of the staff costs incurred. A total of 10 for the period 2006-2011 and 14 for the period 2012-2017. This is irrespective of the number of products examined and includes work on individual measures but also horizontal activities. The assumption of a fixed number of staff is important and it is conceivable that by 2016 more staff will be involved in the process. We therefore did some further analysis on the basis of a more flexible response.
- We have used an average of 4 years for the whole procedure from the time a preparatory study starts until the entry of an Implementing Measure into force. This represents the experience so far.
- Voluntary agreements have not been considered. Still, as suggested by the Commission, the amount of work involved during the development of a Voluntary Agreement is not very different from that for an Implementing Measure.
- In the case of Member States, the estimates made were based on information provided by CLASP that indicates a total of around 80 FTE working on Ecodesign and Energy labelling compliance administration in the 30 EEA countries. These are not dissimilar to the estimates provided in section 3.4.3 on the basis of an average number of 2-3 FTE per country. For the period 2012-2017 we assumed

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an increase to a total of 110 FTE (1 more FTE per country) to reflect the increasing number of products covered and the needs for more extensive market surveillance activities. Furthermore, according to CLASP, expenditure on equipment energy performance regulatory compliance is in the range of €7 million annually.

- A total of 12 reviews of the existing Implementing Measures for the period 2012-2016 have been assumed referring to the Implementing Measures already in force when the analysis was conducted.
- In the case of activities (e.g. JRC studies) that took place during the period 2006-2011 that would be reasonable to expect to be repeated in the coming period for which no data were available we assumed a similar budget.
- Where data on the Ecodesign were not available consistency with estimates in parallel areas have been maintained. For instance, the initial costs of adopting the revised Directive are estimated at the same level as was given in the Impact Assessment for the Energy Labelling Directive.
- All costs are considered incurred at the time of the initial commitment.

Bearing these assumptions in mind the main costs estimates are summarised in the Table below. A more detailed analysis is provided in Annex E.

Table 3.42 - Commission & Member State costs: period 2006-2011 and 2012-2017 (numbers in €s)

	<u>2006-2011</u>	<u>2012-2017</u>
Commission		
Initial adoption	1,000,000	-
Staff	8,250,000	11,130,000
Preparatory studies	12,600,000	3,000,000
Work plans	300,000	-
IM reviews		2,400,000
MEEuP and update	375,000	-
Other studies/evaluation	1,060,000	760,000
Standards	n.d.	n.d.
NGOs/SME support	1,000,000	1,000,000
Total	24,585,000	18,290,000
Cost/year	4,100,000	3,658,000
EEA states (30)		
Initial adoption	4,000,000	-
Staff	38,400,000	52,800,000
Tests & studies	42,000,000	42,000,000
Total	84,400,000	94,800,000
Costs/year	14,066,000	15,000,000
Total costs	<u>108,985,000</u>	<u>112,330,000</u>
Total costs/year	<u>18,164,000</u>	<u>18,721,667</u>

The estimate of the cost to the Commission over the period up to the current year (6 year period of 2006-2011) is around € 25 million, including costs involved in the adoption of the current Directive. Over the coming six years period the overall costs to the Commission are estimated to fall to €18.3 million but this number assumes a much small number of new preparatory studies.

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The costs to the 30 States of the EEA for the initial period are estimated to be around € 84 million (average of €2.8 million/MS), although, as expected, this will vary greatly among Member States. It is expected to increase with the addition of more FTE per State it is expected to increase to around €95 over the next 6 years, On the basis of the assumptions made for future workload the total cost per year to both Commission and Member States is estimated around €18.5million.

One of the key assumptions made in this analysis is that the number of Commission staff will remain the same over the coming period. As already discussed, there are calls for additional staff from a number of stakeholders in order to speed up the process and to be able to respond to an increasing number of ongoing studies. So far, 12 IMs have been completed in the first 6 years (a rate of 2/year). We have assumed that an increase in FTE will lead to a proportional increase in the number of studies completed.

At this point, the Commission operates with around 0.4 FTE for every product products covered. If this principle is to be followed and a total of 10 studies are initiated in the coming 6 years, the Commission costs for the coming period will increase only slightly leading to a total of around 24 IMs in place. With a higher number of studies or more FTE/study the costs increase in the range of €3-€6 million with a total 3-10 additional FTE required. Only in the case that the number of new products covered is reduced to 5 will there be a reduction in the total budget and the FTE for the period 2012-2017.

For the Member States, an increase in resources to strengthen market surveillance may lead to additional costs of €24-26 million.

Table 3.43 – Alternative scenario for the evolution of the Commission and MS budget (period 2012-2017)

	Scenario 1 Same resources 10 new ErPs	Scenario 2 More resources 10 new ErPs	Scenario 3 Same resources 20 new ErPs	Scenario 4 Same resources 5 new ErPs	Scenario 5 High Resources 10 new ErPs
Commission					
FTE/IM in progress	0.4	0.5	0.4	0.4	0.7
FTE/IM in force	0.1	0.2	0.1	0.1	0.2
New ErPs	10	10	20	5	10
Average FTE	15	19	16.5	13.5	23
EuPs/ErPs covered by 2017	24	30	24	24	36
Staff costs	10,740,000	13,428,000	11,880,000	9,720,000	16,776,000
Studies' costs	3,000,000	7,500,000	6,000,000	1,500,000	3,000,000
Commission costs	18,190,000	19,828,000	21,280,000	14,620,000	23,176,000
Additional budget	660,000	2,298,000	3,750,000	-2,910,000	5,646,000
Member States	Same resources	More resources		High resources	
Total FTE	110	140		170	
Total staff costs	52,800,000	67,200,000		81,600,000	
Extra budget	-	24,000,000		48,000,000	

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On the basis of these estimates of costs there are questions about the sustainability of the Ecodesign implementation process, even as far as the coverage of additional energy using and energy related products are concerned. These questions would become even more urgent if the Directive were to be extended to cover non-energy related products.

Costs to industry and stakeholders

As indicated in Section 3.3 the data available related to the costs of industry are still rather limited and do not allow for a proper assessment of the total administration and costs. Furthermore, in many cases all or parts of the costs are expected to pass down to consumer through, mainly short term, price increases. Administrative costs can also be significant for firms with multiple products although, again, the limited evidence provided, suggested a mixed picture.

Beyond these costs for firms, there are the costs of participating in the processes leading up to a decision on the nature and scope of the Implementing Measures. For many firms, this will be through their industry association, for which they usually pay a subscription fee. For some firms, however, especially the larger ones, there will be direct involvement. The costs involved in this process are not negligible, especially if the process is protracted. One representative organisation in a middle-size Member State reported that 4 full time staff is employed just in monitoring the Ecodesign process.

In addition to industry and Member State input into the development of Implementing Measures, there is, of course, an input from various consumer and environmental organisations, a number of which have staff working on Implementing Measures. Estimates of time input ranged from 0.5 of a FTE to 3 full time staff, though a more typical number is 1 – 2 FTEs, only part of it covered by the €1 million grant provided by the Commission.

Furthermore, some industry associations and enterprises have raised the issue of costs arising from their experience in some Member States of officials using their own national interpretations of requirements and of practices that are not derived from the Directive (often relating to former national procedures.) This is an infringement of Internal Market rules, but in practice imposes additional administrative costs on firms trading in different Member States.

Cost-effectiveness of the Directive

The estimated costs to the Commission and the Member States - €19-25 million per year, a total of €220-280 million in 2005 values for the whole period 2005-2020- for the implementation of the Directive are a small fraction of the expected savings from the measures adopted. According to a study by Ökopol¹⁸⁸ in 2010 the energy savings from the Directive are expected to reach a total of €127 billion in 2020 or €90 billion if energy prices remain at 2005 levels if all products in the transitional period and the first working plan are covered. Furthermore, the measures are expected to bring total energy savings in 2020 in the range of 900-1200 TWh, of which 376TWh should come from the 12 products already covered by Implementing Measures. In terms of GHG emissions a total of 210-265 Mt CO₂ is estimated for the total number of products. To the extent that they are comparable, data from the US suggest a similarly large benefit to cost ratio from the introduction of energy efficiency standards. Up to 2005, the standards had

¹⁸⁸ Okopol. Wuppertal institute and RPA(2010), Outlook on the estimated GHG emissions reductions, Report for DG CLIMA, ec.europa.eu/clima/studies/effort/docs/impact_ggas_en.pdf

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produced consumer savings of around \$64 billion in comparison to a total of \$200-250million use by the Department of Energy to support the appliance standards programme, a ratio of around 250¹⁸⁹.

As stated, the cost figures stated do not include the costs to industry nor the costs to consumer for the changing of appliance as the necessary figures are not available. Some evidence comes from the impact assessments of the individual IMs concerning the UK economy that was conducted for the UK government. The costs considered for a period up to 2020 included compliance costs to manufacturers and the costs from the possible increase in the prices of appliances to consumers. In many cases, costs to manufacturers were considered rather negligible assuming that these would be passed through, mainly short term, price increases to consumers. The benefits considered included savings in electricity consumption but also CO2 and other air emissions abatement costs. The benefit-cost ratio is in most cases greater than 4, with only the case of circulators and power supply units having a less favourable ration.

Table 3.44 – Costs and benefits for the UK from the adoption of Implementing Measures for EuP – estimates based on impact assessments (costs are present values for the period up to 2020 – varying duration depending on product)

Product	Costs (million of £s)	Benefits (million of £s)
TVs	435	1306
Domestic lighting	255-512	1215-2026
Set top boxes	113	609
Circulators	726	941
Power supply units	51-67	88
Motors	509	2517
Stand-by	450	1900-2400
Tertiary lighting	96-142	1280
Washing machines	12.7	192.8
Dishwashers	34	206

Source: UK Impact assessment library¹⁹⁰ - Multiple documents

Overall, the evaluation team consider that it is undisputable that the energy efficiency requirements are highly cost-effective. In that respect, there are significant grounds for the dedication of additional resources at both the European and the national level. These are particularly needed to address the problems of delays and quality in the development of Implementing Measures and to improve market surveillance. In comparison, to other regions (e.g. U.S.A.) the resources in terms of budget and staff dedicated for the preparation of each Implementing Measure are quite restricted. In the case of the U.S. Appliance Standards programme - which we should note only considers energy efficiency issues - the budget for 2010 was \$ 35 million (€26 million) while the total programme budget over the period 2006-2010 was \$104 million (€77million) for 16 products, on average \$6 million (€4.4 million) per product group examined. In comparison, the European Union has spent less than € 10 million in contracts for 31 preparatory studies over a period of 5 years (2006-2011).

Furthermore, in the case of the Member States, an increase of the effort to enforce compliance would be more than justified. The study by CLASP suggests that an increase in the total annual compliance enforcement costs for Energy labelling and Ecodesign to an equivalent of €1 per head would amount to about €0.5 billion a year (an increase of around 70 times from the current costs). This, it is estimated,

¹⁸⁹ <http://efficiency.lbl.gov/drupal.files/ees/Realized%20and%20Projected%20Impacts%202008%20938510.pdf>

¹⁹⁰ <http://www.ialibrary.bis.gov.uk/search/>

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would lead to a reduction of non-compliance from a level of 10%¹⁹¹ to 2.5% and energy savings worth around €10.5 billion a year.

3.4.5 Institutional support for the implementation of the Directive

The terms of reference asked the evaluation team to consider the possibility of assessing alternative options concerning the responsibility for the development of Implementing Measures. There have been certain proposals from stakeholders, especially Member State representatives, that the process could be transferred to an executive agency or an organisation such as the Joint Research Centre and that this would help reduce some of the external costs and also achieve a certain level of operational efficiency.

An argument concerning increased operational efficiency as a result of the transfer of tasks to executive agencies has certainly been supported by recent evaluations of agencies that have been established in other areas for a number of years now, as long as the tasks to be performed are well understood and can be applied relatively routinely. A more detailed case would need to be considered of the extent to which the Commission could be relieved effectively of administrative responsibilities. However, there is also a broader case that is developing as a result of considerations about the need for greater efficiency in the processes for developing Ecodesign Implementing Measures.

It has been seen that the pace of progress with developing Implementing Measures appears to have slowed down in recent years. Part of the explanation is the growing complexity of the products under consideration. However, experience with the processes suggests that there is scope for capitalising on the lessons learned and possibly embedding this learning in a dedicated institutional framework. In particular, it has been pointed out that included in the wide range of expertise required for conducting preparatory studies, there is a need for an awareness of the institutional processes within the Commission and in the relations with Member States and other stakeholders. It is important, for instance, to be able to have effective co-ordination with officials responsible for related legislation, including the WEEE and RoHS Directives and also to have a good knowledge of the steps to be taken to assist a smooth passage of the proposals up to the point of adoption of a Regulation and beyond. An attribution of responsibility for developing Working Plans and preparatory studies to an agency or the JRC, therefore, could help to consolidate past experience, develop more effective routines (including the development of standard procedures and document formats, guidelines etc). Furthermore, since data and monitoring of developments in markets are seen to be of growing importance, such an organisation could also assume responsibility for data collection and analysis. In these tasks, it would still be necessary to have external assistance, particularly from experts with a detailed knowledge of the technical properties of the products under consideration and also of the techniques for assessing environmental impacts and setting associated requirements. However, institutional knowledge and experience would be embedded and more effective support provided for the Commission services, which would of course retain responsibility for core policy matters. Above all, such an arrangement could make a significant contribution to improving the efficiency of current procedures, especially at a point where virtually all stakeholders believe that they have become too protracted.

In addition to these efficiency considerations new institutional arrangements based on a solution such as creating an agency or a greater role for the JRC would have a significant benefit both for stakeholders and the Commission services in providing an enhanced consistency in the product policy mix. Because, as explained, the Commission has a number of product policies that are applied to the same product

¹⁹¹ As suggested by CLASP, this figure is not based on specific evidence but rather on general experience. The information provided from the Danish authorities indicated levels of non-compliance between 10-20%.

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categories (Ecodesign Directive, Energy labelling, GPP, Eco-label), an agency with the right remit could develop or review all the product policies for one product at the same time. This would make it much easier to pursue a consistent approach than in a situation where responsibility for often very detailed analysis is spread over different Commission services. It would also increase efficiency of relationships with businesses and other stakeholders, mean that consultation is through one partner etc. . Initial experience in a pilot project with the JRC is reported as progressing very satisfactorily.

All in all, such an arrangement could make a significant contribution to improving the efficiency and effectiveness of current procedures, especially at a point where virtually all stakeholders believe that they have become too protracted.

3.5 Utility and European added value of the Directive and the Implementing Measures

3.5.1 Utility of the Directive

In relation to the utility of the Directive the terms of reference set the following evaluation questions:

- To what extent do the results achieved so far correspond to the needs they were designed to address? What measures need to be taken to improve the utility of the activities evaluated?
- Have Implementing Measures provided sufficient environmental improvements justifying their development? What is the justified improvement limit?

The long terms objectives identified in the Directive document against which the utility of the Directive has to be evaluated are stated as:

- To support the harmonised operation of the market and avoid fragmentation
- To increase energy efficiency to reduce green house gas emissions
- To increase the security of energy supply and reduce dependence
- To Increase the level of protection of the environment
- To support the competitiveness of industry

Given the still relatively restricted evidence on the effectiveness of the Directive it is not possible to provide any conclusive answers. Still, in relation to the issue of the harmonisation of the market, it is clear that the development of Implementing Measures in the form EU-wide Regulations has helped to avoid fragmentation of the market for the EuPs already covered. For those products not yet covered but identified in the Working Plan no new legislation at the national level has been reported.

For the remaining aspects, concrete evidence at this stage is limited and in many respects it is rather premature to judge. Some initial indications can be derived from the responses of stakeholders on the contribution, so far, of the Ecodesign Directive to EU policy objectives (see Chart 3.47).

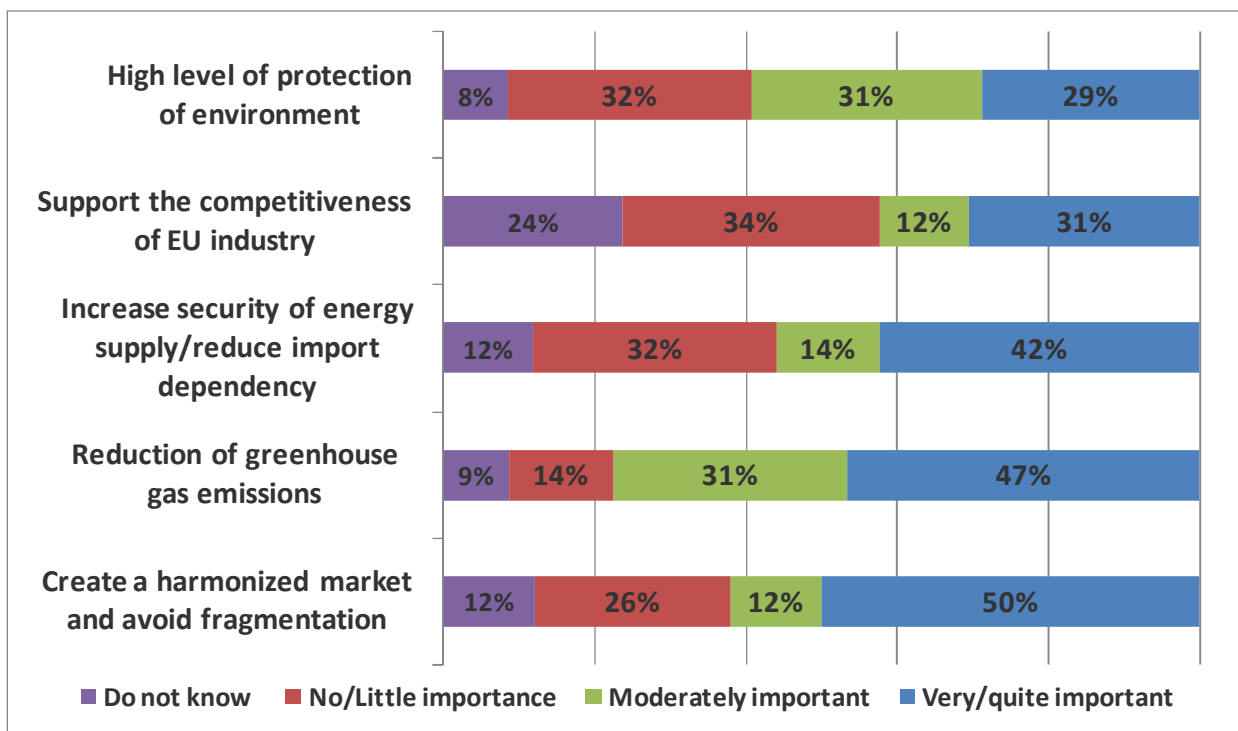
The responses confirm the conclusion that the objective of a harmonized market is rather effectively served. Among the different groups of stakeholders industry representatives are not as supportive (more than 40% have a negative view). This is primarily a reflection of the weak market surveillance that can

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jeopardize the effective operation of the market. Furthermore, there is rather strong endorsement of the contribution of the Directive to the goal of the reduction of greenhouse gas emissions, a view shared by all categories of stakeholders, and to the reduction of energy dependency for Europe. To a certain extent these are both issues contributing to the achievement of higher levels of energy efficiency in products through the adoption of Implementing Measures. While there is no strongly quantifiable and direct evidence so far on the actual effectiveness of the individual measures, there is a general conviction that certain levels of energy savings will be achieved. In contrast, on the issue of the contribution of the Directive to the competitiveness of the industry, the views of stakeholders diverge. Especially among industry stakeholders (associations or individual firms), less than 25% indicate a positive contribution (important or very important), in contrast to the strong majority of Member State representatives (over 70%) that assign an important role to the Directive in this area. Finally, concerning the protection of the environment, positive and negative views are equally expressed among all categories of stakeholders. As already pointed out, one area of criticism is the main focus on energy consumption and the limited coverage in the Implementing Measures of other aspects. It can be argued that, so far, the focus on energy issues has served in part the overall objective of the protection of the environment.

Chart 3.30 - What do you think is the contribution of the Ecodesign Directive in the following key objectives of the EU policy? (n=61)



Source: CSES survey

3.5.2 European value-added

In relation to the question of European added value, it is the view of the great majority of stakeholders that an EU-wide measure in the form of regulations under the Ecodesign framework was the most appropriate approach. The harmonisation of the market is the key and a crucial added-value against possible national initiatives that could result in a fragmentation of a market that operates at a European and global scale. Even among those that support Voluntary Agreements as alternatives to regulation, an EU-wide approach is still considered necessary. Furthermore, as suggested by some Member State representatives, on their

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own, Member States would represent too small a market to achieve the same level of results in a cost effective manner. Thus, an EU wide approach provides the necessary scale to drive industry change.

However, there is less acceptance of the appropriateness of developing EU-wide regulatory measures in the case of energy-related products such as construction products. According to a number of stakeholders, including almost all representatives of the construction industry, the variations in terms of climate and use of building materials make the setting of EU wide requirements inappropriate. However, it would still be possible in the relevant implementing Measures to define climate or other geographical zones where manufacturers would be expected to define the intended use of certain products. The starkest difference between stakeholders, however, arises in relation to the Energy Performance of Buildings Directive. Construction industry stakeholders argue that this legislation addresses the issues of efficiency in better way, while environmental NGOs believe that this view is unfounded. They believe that the EPBD is unambitious and particularly vague on building system performance. They consider that there is an added-value in Ecodesign requirements in that product-level requirements can effectively complement regulations at the level of the buildings.

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4 ASSESSMENT OF THE FEASIBILITY OF EXTENDING THE ECODESIGN DIRECTIVE TO NON-ENERGY RELATED PRODUCTS AND MEANS OF TRANSPORT

4.1 Introduction - Methodology

A distinct part of the evaluation study is the assessment of the feasibility of extending the Directive to non-energy products and means of transport. The goal of this task is neither to set Ecodesign requirements for specific non-energy related products nor to replace the work that has to take place through the Working Plan, if an extension does take place. Rather, the aim is simply to examine the appropriateness of using the Ecodesign Directive beyond the current coverage of ErPs to include non-energy related products.

More specifically, this part of the study aimed to address the following key questions:

- Whether an EU Directive setting eco-design requirements is the appropriate policy tool to fulfil the policy objectives of SCP/SIP for non-energy related products when assessing alternative instruments;
- Which broad categories of non-energy related products should be considered as having greater priority in the case of a possible extension of the Ecodesign Directive in order to serve the policy objectives concerning sustainable production and consumption;
- Whether the current provisions and mechanisms of the Ecodesign Directive are adequate in the case of non-energy related products and, if not, what changes are necessary and how feasible are they.

The approach taken by this section is a combination of an overall analysis of the issues and constraints that apply in the case of a possible extension, and the findings of 5 detailed case studies – four non-energy related products and one means of transport – which examine the potential and the possible issues related to a possible extension of the Ecodesign Directive. The case studies were used to draw lessons that guided the analysis of the appropriateness of a possible extension in relation to a broader group of consumer and industrial products.

CSES would like to stress that the selection of the products for analysis in the case studies should not be considered to be an indication of any intention by the Commission to propose regulation of the specific products concerned. The same applies to the broader priority list of products. Following provisions in the Ecodesign Directive, the selection of specific products requires a dedicated Working Plan study and subsequent thorough product-by-product preparatory studies. The initial assessment, conducted within a limited time frame and as part of the broader evaluation of the Ecodesign Directive, should not and cannot replace any of these key steps. Rather, the focus has been on the broader lessons learned from examining individual cases and general conclusions concerning the appropriateness and feasibility of a possible extension to non-energy related products and means of transport.

The consultants would also like to point out that their analysis has relied on existing studies, information that it has been possible to identify over a relatively brief period of time and a small number of interviews. Furthermore, it has not been possible to apply a life cycle analysis or product-specific technical expertise to any significant degree. The results and conclusions in relation to the case studies and, even more so, as far as the identification of priority products is concerned, should be treated with these considerations in mind.

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4.2 Case studies

4.2.1 Introduction

The purpose of the case studies has been to provide an initial assessment of the feasibility of an extension to different categories of non-energy related products and to draw lessons and conclusions in relation to the broader products groups they represent. According to the terms of reference the 5 case studies should be selected from the following product groups:

1. Food and beverages (including packaging)
2. consumer products (e.g. textiles, clothing and footwear, non-ErP household products including cleaning products, kitchenware)
3. industrial products (e.g. products used in industrial processes e.g. chemicals, non-energy using machinery)
4. housing products (i.e. products used in house construction including do-it yourself products, paints and varnishes, floor coverings)
5. means of transport (e.g. vehicle cars and tractors);

The work in this area followed four steps:

1. Selection of five representative products for case studies;
2. Development of the appropriate methodology for the case studies ;
3. Conduct of the case studies;
4. Draw conclusions and lessons from the case studies and additional sources for an assessment of the appropriateness of extension for the broader product groups represented.

4.2.2 Selection of products for the case studies

The scope of the exercise extends to all categories of products not covered by the 1st Working Plan 2009-2001 for Energy Using Products and the 2nd Working Plan 2012-2014 for Energy related products (ErPs)¹⁹², currently being developed. The PRODCOM database served as the initial reference point. On the basis of the analysis conducted for the 2nd Working Plan (by VHK) a total of 975 Energy-Related Product categories – at the 8-digit level - were identified¹⁹³. In addition, other means of transport and some EuPs that were not included in the initial list of VHK for the 2nd Working Plan have been excluded from the initial list. PRODCOM codes covering installation, maintenance and repair services or of mining activities have also been excluded as they did not directly refer to products. This left a total of 2669 codes for classification into the 5 broad product groups.

The grouping is presented in Table 4.1 below. In the case of agricultural products, we have included in the product group agricultural chemicals (fertilisers, pesticides) and the relevant packaging products used (paper, plastic, cans). The consumer, housing and industrial product subgroups are rather broad and are based on general product functions that may need to be further refined. There are a few cases that could

¹⁹² <http://www.ecodesign-wp2.eu/>

¹⁹³ Task 1-2 report, http://www.ecodesign-wp2.eu/downloads/2011-02-18_Task1-2_Main-report.pdf

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be classified under more than one category. Means of transport includes not only vehicles, aircrafts, ships or trains but also parts and components used in transport vehicles and systems.

Table 4.1 – Grouping of PRODCOM codes under broad product categories – non-energy related products

Product group/subgroup	Number of PRODCOM codes
Food and beverages	
Food products (Animal and vegetable products, prepared foodstuff, beverages, alcohol drinks etc)	384
Pesticides, herbicides and other chemicals used in agriculture	23
Food packaging (plastic, cardboard, etc.)	25
Consumer products	
Cleaning and detergents	20
Clothing and footwear	181
Furniture	31
Table/kitchen ware	31
Personal care	29
Other products used in households	34
Household textiles	45
Paper products (sanitary products, books, notebooks, envelopes etc.)	52
Hand tools	59
Medical products	29
Other consumer products (e.g. sports equipment, music instruments, lenses)	119
Housing/Construction	
Wood products (including floor and wall coverings)	37
Other non wood coverings	4
Ceramic and plastic toilets, sinks, doors etc.	34
Paints, varnishes and other construction materials	28
Industrial products	
Chemical substances used in industrial processes	485
Textiles (yarns, fabrics and related processes)	135
Tools (non-EuP)	23
Paper products (sheets of paper, cardboards, stationary etc.)	63
Various types of non electronic equipment	29
Other (metal, plastic and other products used as components in industrial processes)	537
Means of transport	
Air, sea and land means of transport (including parts)	211
Other non classified	4
Total	2669
Mining	39
Services (installation, repair and maintenance of products, means of transport etc.)	81
ErPs/EuPs	975
Part of ErPs/EuPs (not included in WP1/WP2)	94
Other means of transport (expected to be included in WP2)	53
Total PRODCOM	3902

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This exercise revealed what is already a frequent conclusion in relation to the use of the PRODCOM database in the context of the Ecodesign Directive. A common problem is the sector-orientation of the PRODCOM database and its inability to fit in with functional product descriptions. Moreover, despite the rather detailed description provided it is not always clear possible to distinguish between products directed towards consumer or industrial use (e.g. cleaners of surfaces, adhesives). Furthermore, in relation to the actual data on sales volume, the data provided for the great majority of non-ErPs are provided in units of weight (kgs) or volumes (lts or m³) which makes it difficult to assess whether they exceed the indicative number of 200,000 units provided for in the Ecodesign Directive. While in certain cases it may be possible to use average/typical weights of units to estimate the number of units sold (e.g. in the case of juices, perfumes, drinks), the majority of products circulate in the market in a wide range of sizes and weights and no realistic estimates are possible.

Thus, the use of PRODCOM did not appear to serve the objectives of the study. Instead, a top-down approach was followed based on the identification of product categories covered by eco-labels and informed by additional studies, including the work conducted by the Joint Research Centre in the context of the Sustainable Production and Consumption project¹⁹⁴ (IPTS) and the basket of product indicators in an ongoing study by the IES. Following an initial review of existing eco-labels in Europe the study focused on four eco-label schemes from which we developed a list of non-energy related products. These included the European Eco-label, the Nordic Eco-label (Nordic Swan), the German Blaue Engel and the Dutch Milieukeur. For all products covered, supporting studies allow to define the product groups and provide information on the main environmental impacts of a typical product, the phase (production, use, and disposal) where the main environmental impacts take place and, in some cases, the improvement potential¹⁹⁵.

However, existing eco-labels did not cover all five product groups since the focus is primarily on the category of consumer and housing products. The EIPRO study report by IPTS analysing the environmental impacts of a wide range of products consumed in the EU-25 was particularly helpful.¹⁹⁶ The study examined a broad range of environmental impacts very much in line with those considered in the MEEuP methodology for the Ecodesign. The study covered all five product groups. Moreover, the IMPRO studies on meat and dairy products, vehicles and housing that examine the environment improvement potential of these three categories are also particularly relevant and will be further utilised.¹⁹⁷

On the basis of the information collected an initial list of 38 product categories and from those 5 products were selected in cooperation with the Commission services on the basis of the information provided by the EIPRO study (focusing on the importance and type of environmental aspects), data on volumes of production and trade¹⁹⁸. The criteria used included:

- A significant level of sales and significant environmental impacts (mainly based on the conclusions of the EIPRO study)
- Availability of supporting LCA information (from existing eco-label schemes) and other sources.
- A certain level of variation in terms of the environmental impacts (type and phase of impact)

¹⁹⁴ <http://susproc.jrc.ec.europa.eu/>

¹⁹⁵ We should note here that not all studies are equally accessible.

¹⁹⁶ IPTS/ESTO (2006), Environmental Impact of Products (EIPRO) - Analysis of the life cycle environmental impacts related to the final consumption of the EU-25, http://ec.europa.eu/environment/ipp/pdf/eipro_report.pdf

¹⁹⁷ IPTS, Environmental improvement of products, <http://susproc.jrc.ec.europa.eu/activities/IPP/impro.html>

¹⁹⁸ When provided data from the Eco-label studies were used. Furthermore, in most cases, an identification of the relevant PRODCOM 8-digit categories and the corresponding Combined Nomenclature (CN8) product categories were used when available/applicable.

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On the basis of the discussion with our technical experts and the feedback from the Commission, the following short list was selected:

1. Food and beverages: Sausages and other prepared products
2. Consumer products: Clothing
3. Housing products: Floor coverings
4. Consumer/housing/industrial: All purpose cleaners and hand dish wash detergents
5. Means of transport: Passenger cars

In the case of **food and beverages products**, meat and dairy products are among the top product categories in terms of environmental impact according to the EIPRO study. From this group, sausages and other prepared meat products were considered an appropriate group for further examination since they combine high sales volumes, high levels of impact across a number of environmental aspects (sausages have among the highest impact per Euro of consumption in a number of environmental aspects according to EIPRO) but also a significant level of processing and standardisation in comparison to other food products. Arguably, other products (ice creams, prepared meals, canned drinks) could also fulfil these requirements but processed meat products were selected on the basis of the availability of LCA information from the IMPRO study.

In relation to **consumer products**, on the basis of the EIPRO study and the existing Eco-label documents clothing and footwear, furniture, bed mattresses, all purpose cleaners, soaps and shampoos were initially identified as product categories with high sales volumes, a broad range of environmental impacts and a substantial level of LCA information available. Following the feedback from stakeholders, it was considered appropriate that two types of consumer products should be selected, one representing durable and the other non-durable goods. Clothing was selected following the advice of the Steering Group as a more typical durable consumer good. All purpose cleaners and hand dish wash detergents were selected as non-durable goods that are also used – often in relatively different ways– in industrial processes and representing the large group of chemical products. This allowed us to cover **the industrial product group** without increasing the number of case studies.

In the case of **housing products**, paints and varnishes and floor coverings (hard and soft) were identified in the EIPRO study as having significant levels of environmental impact at different stages of the life cycle. Floor coverings were selected following the advice of the Steering Committee as chemical products were already covered by the cleaners.

Finally, in the case of **means of transport**, passenger vehicles are identified in EIPRO and other studies as having the main impact for almost all environmental aspects. Furthermore, together with the IMPRO study it provides substantial levels of information both on environmental impacts and improvement potential that can be used to support the case studies' analysis.

4.2.3 Methodology

The case studies of the five representative products considered the appropriateness and feasibility of using the Ecodesign Directive and its structures and mechanisms to develop Ecodesign requirements in relation to each specific product category.

The case studies combined a technical analysis of the environmental impact and improvement potential (on the basis of a life cycle assessment of the selected product) with a broader policy analysis examining the feasibility and appropriateness of developing Ecodesign criteria to achieve sustainable consumption and production objectives against alternative policy options. Each case study will include the following steps:

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1. **Economic and Market Analysis:** The Eurostat PRODCOM database was used as a starting point for sales and trade level data for the specific products. However, when available, other market data from industry associations and, if necessary market research reports, will be reviewed and used to assess stock data and market trends. Furthermore, information on consumers and producers behaviour in relation to all phases of the products life (production, use, and end-of-life) was collected when applicable.
2. **Life Cycle Analysis** - On the basis of existing information and published studies, a Life Cycle Analysis of the covered products was used to provide an assessment of the environmental impact for a standard product. The analysis aimed to cover all categories of environmental impact stated in the Directive and considered all phases of the life-cycle of the products although this depended also on the information made available in the relevant studies. We should note here that this was still a preliminary analysis. Furthermore, we examined how the MEErP methodology - and particularly the EcoReport tool - would have worked if used, identifying which important issues would possibly be missed or distorted. We should note here that the study took place in parallel to the review of the MEErP methodology that may be able to address some of the issues identified. Whenever possible, the initial conclusions of that study were also taken into consideration.
3. **Review of the applicable EU and national legislation, relevant European and other standards and other policy tools**, with a view to assess the extent that the identified environmental impacts of the specific product are covered by legislation and other tools – voluntary or mandatory. The objective is to identify areas of synergy or possible overlaps with Ecodesign requirements. It was based on desk research and a few interviews with stakeholders and experts to help develop a complete picture.
4. **Policy Analysis:** On the basis of these three steps, for each of the five products a qualitative assessment of the appropriateness of using the Ecodesign Directive was conducted taking also into consideration alternative options :
 1. No action (i.e. reliance on existing legislation);
 2. Promotion of self-regulation (e.g. voluntary agreements);
 3. Information provision tools (e.g. voluntary or mandatory labelling);
 4. Fiscal instruments (e.g. financial incentives, taxes, public procurement).

The definition of the alternative policy options was made on the basis of the existing policy framework and what appeared to be realistic options at this stage. The assessment was based on a number of key evaluation criteria that included:

- The expected effectiveness of the different instruments in bringing environmental improvements and achieving the SCP/SIP objectives;
- The possible costs to industry, consumers and the administrative and other costs related to the implementation of the tool (efficiency);
- The feasibility of implementation of the specific policy choice;
- Any potential positive/negative impact on the existing Ecodesign Directive for ErPs.

The assessment was qualitative comparing the main scenario of the policy option of the extension of the Ecodesign Directive and the development of Implementing Measures to cover the specific product category against the alternatives. However, it should be stressed at this point that, in accordance to the SCP/SIP action plan these tools should be considered as complimentary rather than alternatives. Thus, our approach was to use the alternatives to illustrate the possible issues related to the use of an Ecodesign Directive and under what circumstances it use could be considered as priority.

A number of information sources were used and interviews with the key stakeholders (industry associations) were organised on the basis of questionnaire (see Annex D).

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The prime objective of the technical and policy analysis in each case study was to draw conclusions concerning the issues that affect the appropriateness and feasibility of extending the Directive to the specific product category aiming to draw conclusions that may apply to the broader product group. These case studies should not be considered as providing the basis for the extension to the specific product categories which, if the Ecodesign is extended, will have to be identified in a working plan and examined in greater detail in relevant preparatory studies.

4.2.4 Summary of the case studies

In this section we summarise the main aspects and conclusions of the five case studies. The full text of the case studies is available in Appendix C.

1. Sausages and processed meat products

This study focused on sausages and processed meat products as representative of the broader category of food products. According to the Food and Agriculture Organisation¹⁹⁹ the sausages and processed meat products fall under one of the following categories:

- Fresh processed meat products (e.g. hamburgers, fried sausages, kebab)
- Cured meat pieces (raw cured beef, raw ham, cooked beef, cooked ham, bacon)
- Raw cooked meat products (Frankfurter type sausages, mortadella, lyoner)
- Pre-cooked cooked meat products (liver sausage, corned beef, pate, corned beef)
- Raw-fermented sausages (salami)
- Dried meat products (meat flosses, dried meat strips)

Market size and structure

The total size of the processed meat EU market in 2010 was around 13 million tonnes with a total volume of €66.3 billion. While it is not possible to translate this to units or items of products, it is rather clear that it meets the indicative requirement of 200,000 unit indicated in article 15 of the Ecodesign Directive.

The EU is a net importer of processed meat the lion share of which is processed poultry. In contrast, the EU is a net exporter of sausages. There are around 14,000 firms active in the sector. While there are four large manufacturers that control around 16% of the market in the nine larger EU countries, most meat processing companies are small or medium sized and often family-owned focusing on the local or national markets²⁰⁰.

Table 4.2 - Main data on sausages and processed meat market

Indicator	Data	Source
Total size of EU market (volume)	13 million tonnes (2010)	CLITRAVI
Total size of EU market (value)	€ 66.3 billion (2010)	CLITRAVI
Imports into the EU (volume) ²⁰¹	516.000 tonnes (2010)	Eurostat
Imports into the EU (value)	€ 1.482 million (2010)	Eurostat
Exports from the EU (volume)	234.000 Tonnes (2010)	Eurostat

¹⁹⁹ <http://www.fao.org/docrep/010/ai407e/AI407E09.htm>

²⁰⁰ In the food industry in general 86% of the firms have less than 20 employees. (Competitiveness report)

²⁰¹ Poultry meat preparations (falling under CN code 1602) are making the lion's share of imports. They are finished meat products (i.e. ready to eat) but are further processed and largely destined to composite foods.

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Indicator	Data	Source
Exports from the EU (value)	€ 676 million (2010)	Eurostat
Total number of firms in EU	14.000	CLITRAVI
Total number of employees	560.000	CLITRAVI

Main environmental aspects and key stages of the life cycle of the product

According to the EIPRO study, food and drink products represent between 20-30% of the total impact for most environmental impacts categories considered in the study.²⁰² Sausages and processed meat products represent the third most important category, with a share of 1.5-5% in total and around 10% among the foods and beverages product group.

Table 4.3 – Contribution of sausages and processed meat products in various environmental aspects

	Food/beverages	Sausage and processed meat			Rank
	Share in total	Share in total	Share in group	Impact/Euro spent	
Climate change	29.3%	2.5%	8%	1.21E-12	3
Resources depletion	20.6%	1.4%	12%	6.76E-13	8
Acidification	29.7%	2.8%	9%	1.34E-12	2
Photochemical smog	25.5%	1.9%	7%	9.43E-13	5
Human toxicity	23.6%	1.8%	11%	8.48E-13	6
Ecotoxicity	31.6%	2.2%	%	1.05E-12	4
Eutrophication	58.1%	4.8%	9%	2.30E-12	1
Ozone depletion	23.6%	1.7%	11%	7.92 E-13	7

Source: EIPRO study

No study addressing the full life cycle of sausages and processed meat products was identified. On the basis of various sources of information examined the following key conclusions can be made:

- The raw materials production phase (feedstuff and livestock breeding) represents the stage with the most important impacts in the product life cycle of sausages and processed meat products. It is the main source of greenhouse gas emissions and the prime contributor to resources depletion and acidification and eutrophication.
- Energy use is more or less equally distributed across different stages of the life cycle including the production phase, distribution/retail and the use phase. Consumer habits in terms of efficient cooking (e.g. the use of a lid when heating water), and the use of the energy efficient freezers and ovens can critically affect the overall amount of energy used.
- Solid waste from the packaging and food waste resulting from the use phase are also rather important issues.

Table 4.4 - LCA analysis of sausages and processed meat – implications from the use of MEEuP methodology

Relevant impact categories	Most important phases identified	Implications of using the MEEuP EcoReport tool
Land-use	Livestock breeding	<ul style="list-style-type: none"> ➤ Issues with allocation of impacts ➤ Land use not considered ➤ Climate change: Unclear in
Energy use	Livestock breeding, Production and Use	
Water use	Livestock breeding, Production and Use	

²⁰² ec.europa.eu/environment/ipp/pdf/eipro_report.pdf

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Climate change	Livestock breeding	relation to biogenic methane from cows ➤ Miss of fate step in relation to eutrophication and acidification
Eutrophication	Livestock breeding	
Acidification	Livestock breeding	
Waste	Production and use	

Considering also the potential use of organic meat in the production of sausages and other processed meat products, there is no clear view as to the extent that this would bring reduced environmental impacts for the whole life cycle. A number of studies on different types of meats indicate important trade-offs between the reduction of impact related to the limited used of fertilizers with other issues such as land use. According to a 2006 report from the Manchester Business School, “there is insufficient evidence to state that organic agriculture overall would have less of an environmental impact than conventional agriculture”.²⁰³

Existing policy framework and other tools

The review of the existing policy framework suggests that only some parts of the indentified environmental impacts are within the scope of relevant regulation or other policy tools. Existing legislation covers the manufacturing processes and the related impacts (mainly emissions) and indirectly – though the Ecodesign requirements for storage and cooking appliances - the use phase. The policy framework appears less comprehensive in the key life cycle stage, crop and livestock production where the main tool is the Common Agricultural Policy.

Table 4.5 - Summary of main relevant regulation and main issues addressed related to sausages and processed meat

No	Name of regulation	Main aspect regulated/addressed
Crop production and livestock breeding phase		
1	Common Agricultural Policy	Agriculture and livestock breeding processes and relevant impact
2	Nitrates Directive (91/676/EEC), Regulation on the use of Sewage sludge (86/768/EEC), Regulation 2003/2003 on mineral fertilisers	Use of fertilisers and sludge in the crop production and livestock breeding
3	Council Regulation (EC) No 834/2007 on organic production and labelling of organic products	Agriculture and livestock breeding process and relevant impacts
Production phase		
4	Industrial Emissions Directive (2010/75/EC)	Air, water and soil emissions and energy use in meat slaughtering and processing processes
5	Water framework Directive	Emissions to water during the crop, livestock breeding, meat slaughtering and processing phases
6	European Regulation (EC) 1935/2004 on materials and articles intended to come into contact with food	Requirements concerning the packaging material used for sausages and processed meat products

²⁰³ Manchester Business School (2006), Environmental impacts of food production and consumption, Research report completed for the Department for Environment, Food and Rural Affairs (DEFRA) by Manchester Business school.

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No	Name of regulation	Main aspect regulated/addressed
Distribution		
7	Euro 4 standard for light-duty road vehicles (98/69/EC) - Euro V standard for high-duty vehicles (2005/55/EC and 2005/78/EC)	Greenhouse gas emissions during production and distribution phase
Use phase		
8	Ecodesign of EuP Directive (2005/32/EC) (for freezers, fridges, grills, hobs, ovens, etc.) ²⁰⁴	Energy used during refrigeration and cooking during the use phase
9	Council Directive 2000/13/EC on labelling, presentation and advertising of foodstuffs	Information on the ingredients in foodstuff and guidance of the best way to preserve and consume products
End of life		
10	Directive on Packaging and Packaging Waste (94/62/EC)	Package creation and processing
11	Landfill Directive 1999/31/EC	Set limits on the amount of biomass to be disposed in landfills.

Beyond legislation, there are a number of labelling and other voluntary schemes developed from governments (e.g. Grenelle law in France – currently in an experimental stage) and the private sector concerning the food sector that have an influence on the life cycle stage through the use of good agricultural practices (e.g. GlobalG.A.P.), the adoption of green supply chain practices by retailers or certain eco-labelling tools (Milieukeur in the Netherlands, carbon footprint). Still, despite the on-going work from industry (Round Table of Sustainable Food Production and Consumption) and the Commission (JRC IES study on ecological footprint²⁰⁵, feasibility study on development of a European Eco-label for food products) there are still important methodological issues for measuring and assessing environmental impacts. The study on the possible development of an EU Eco-label for food, drinks and feed concluded that the development of environmental output criteria and the verification of compliance can be quite complex, resource intensive and costly, particularly for SMEs.

Identification and analysis of potential Ecodesign requirements and comparison with alternative options

On the basis of the Life Cycle impacts identified in the analysis the following eco-design requirements for processed meat were considered:

- Generic requirements requiring the conduct a life cycle analysis on the basis of secondary or primary data, develop the ecological profile of the specific product, identify alternative options against benchmarks and also provide information to consumers on the key aspects related to these products;
- Specific requirement for the use of meat produced on the basis of agriculture practice scheme (e.g. Global G.A.P.) or minimum requirement in relation to the use of organically produced meat;
- Minimum requirements on the amount (e.g. weight of packaging/product) and recyclability of packaging material used while taking into consideration the issue of product safety requirements.

Alternative options were also examined including:

²⁰⁴ May also be related to the distribution/retail phase once implementing measures for commercial refrigeration units are adopted

²⁰⁵ http://ec.europa.eu/environment/eussd/product_footprint.htm

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- A business as usual scenario including existing regulations and programmers related to environmental impact of production processes and developments on a voluntary basis towards the provision of additional information to consumers;
- Mandatory labelling in relation to certain key environmental impacts such as energy use or greenhouse emissions;
- Voluntary agreement for minimum universal and/or specific requirements;
- Financial tools such as financial support for improvement of processes used in agricultural production and meat processing.

The main conclusion of the study is that the use of Ecodesign based requirements **can bring substantial environmental improvements for the category of sausages and processed meat products if it targets the initial stages of their life cycle**. The introduction of supply chain requirements on behalf of producers can be particularly effective in terms of pushing for changes and adoption of environmental practices at a global scale.

However, there are a number of practical as well as economic considerations for the development of such an approach at this stage. One such is the **absence at this stage of a widely accepted methodology and standards** to support a life cycle analysis. The current MEEuP methodology and the EcoReport do not seem to provide the answer but there are already efforts in this direction. In addition, there is significant **complexity and substantial administrative costs** that may arise for the implementation of an approach that would be based on declarations or certificates to ensure conformity with specific requirements, particularly for SMEs.

Focusing only on generic requirements for the development of the ecological profile of products on the basis of a simplified life cycle analysis relying, mainly, on secondary data (following the Grenelle approach) may be an option. It would still rely on the development of a generally accepted methodology. Furthermore, it is not clear to us whether this is acceptable under Article 15 of the current ErP directive²⁰⁶. This is point that will have to be clarified or modified in the case of a revision of the Directive.

Overall, while feasible and possibly effective, the implementation may prove particularly demanding due to the need to regulate a complex and global supply chain structure with a large number of SMEs. At least in the short term, the **promotion of voluntary initiatives** towards minimum eco-design requirements – within or outside the scope of the Ecodesign – may provide a more flexible and viable approach to cover important parts of the market and bring substantial results. The sector of processed meat may not provide the most supportive base, given its fragmented structure and the large number of small artisan producers focusing on national or local markets.

²⁰⁶ Article 15 states that “implementing measures shall lay down eco-design requirements in **accordance with Annex I and/or Annex II**”. It goes on: “Specific eco-design requirements shall be introduced for selected environmental aspects which have a significant environmental impact”. Our reading of the above provisions is that specific requirements have to be introduced and that generic requirements based on Annex I cannot stand on their own.

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Table 4.6 - Assessment of Ecodesign-based requirements against alternative options

Option	Effectiveness	Costs	Ease of implementation	Impact on Ecodesign
Ecodesign based requirements	Potentially high environmental improvements in relevant areas if properly implemented	Possibly high costs for implementation through the use of supply chain certifications – especially for SMEs Costs for development of compliance/ certification structures and standards	Possibly complex to establish Important additional work needed to develop measurements standards, methodology and data	Need for change of the MEEuP or new methodology to cover other issues No apparent changes for Directive document
Mandatory labelling	Effective but not as in the case of minimum requirements Danger of consumer confusion	Possibly high costs for implementation through the use of supply chain certifications – especially for SMEs Costs for development of compliance/ certification structures and standards	Possibly complex to establish Important additional work needed to develop measurements standards, methodology and data	No expected impact
Business as usual scenario	Effectiveness depends on level of development of industry initiatives for green supply chains Potential for significant impacts from strengthening of existing legislation (e.g. CAP)	Some additional costs for enforcement of legislation Moderate costs for industry for monitoring VAs and development of new labels	Easy to implement as already in place	No expected impact
Voluntary agreement	Effectiveness depends on the level of participation. Possibly difficult in the case of the processed meat sector	Costs for implementation through the use of supply chain certifications possibly significant but most probably less than mandatory standards Reduced costs for authorities for enforcement	Possibly complex to establish Important work needed to develop measurements standards, methodology and data	No expected impact
Financial instruments (taxes or financial support instruments)	Effectiveness of taxes potentially high if targeted Limited effectiveness of grants and R&D unless on a very broad scale	High costs for financial instruments	Tax on specific types of products may be very difficult to implement (politically and practically) Grants/tax breaks on the basis of practice or standards easier Will still need measurement methods or the use of certain standards	No expected impact

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2. Clothing

This case study examined the feasibility of developing eco-design requirements in the context of the Ecodesign Directives for products that fall under the category of clothing and textiles. Furthermore, the study focused on two categories of clothing products, leather jackets and cotton jeans.

Market size and structure

The European textiles and leather sector employs over two million people in 177,000 enterprises, mainly small and medium-sized enterprises (SMEs), and has a turnover of more than €200 billion. The industry has a rather diverse nature with a large number of producers, high volume of imports from outside of the EU.

A 2009 published by the CBI Market Information Database estimates that in 2007, the total market size in the EU consisted of 389 million pairs of jeans, with a value of € 14.0 billion. This is also estimated to be a significant increase over 2003, where the EU market volume was 373 million pairs and had a value of €13.8 million.²⁰⁷

There has been significant restructuring in the industry due as a result of the reduction of trade barriers. This has seen European production move into higher value-added luxury goods production. This process of globalisation has been driven by retailers that are able to source materials from anywhere in the world. For leather, industry stakeholders estimate that at a global level, shoes constitute the most significant users of leather in the apparel industry.

No reliable figures exist for the number of leather jackets produced or sold in Europe. The value and volume of leather apparel is tracked to varying degrees, though the number of items uncertain. For the purposes of this report, COTANCE provided an estimate. Based on EUROSTAT data for the years 2005 and 2010, COTANCE estimates that the volume and value of the clothing translates into between 27-41 million items/year. Taking in a rough estimate that leather jackets represent about 10-15 percent of the entire leather sector's turn-over (approximately € 7 billion) and factoring in an average estimate for the value and volume of jackets, a 'best guess' is that the EU market for leather clothing (jackets) is about 35 million items/year.²⁰⁸

Most leather is exported for manufacturing and is then re-imported as finished goods. This is due to the high costs of labour in Europe. High-end production (approximately five percent) remains in Europe. Domestic EU production is likely to be marginal (nearly exclusively high-end products) at around 2 million jackets produced a year, of which many are exported.²⁰⁹

A similar trend exists in the jeans market. The EU imported 554 million pair of jeans at a value of € 5.4 billion in 2007. Italy is still the leader in jeans manufacturing in the EU but production migrated to Eastern Europe and North Africa to take advantage of the lower labour costs. Other EU countries which have a significant jeans industry are Spain, Portugal and Romania. An increasing share of jeans imports into the EU came from developing countries (37% in 2003 and 47% in 2007), with a greater concentration of imports coming from developing countries. However, the trend in the market towards greater individualisation of

²⁰⁷ The EU market for denim jeans. 2009. Ministry of Foreign Affairs of the Netherlands.

http://www.icci.com.pk/data/downloads/11/475873083_1.pdf

²⁰⁸ COTANCE calculations based on Eurostat data from the category - ARTICLES OF APPAREL AND CLOTHING ACCESSORIES, OF LEATHER OR COMPOSITION LEATHER (EXCL. FOOTWEAR AND HEADGEAR AND PARTS). Extracted 08-12-2011

²⁰⁹ Estimate by COTANCE

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products and the need for quick response to fast-changing demand and fashion have led to a continued level of European production, especially at the high-end or luxury price-points.²¹⁰

Main environmental aspects and key stages of the life cycle of the product

The EIPRO study found that areas of private consumption outside of food and drink, transport and housing account for no more than 20 to 30% of most environmental impacts.²¹¹ Of these other areas, the available evidence suggests that clothing ranks highest, accounting for between two and ten percent of total environmental impact.

The LCA analysis performed for this case study highlighted the most relevant impact categories and the stage in the lifecycle that had the greatest impact on the environment. These are the initial cotton cultivation of cotton and the use for jeans and the production stage (tanning process) of leather jackets.

Based on the available information, the **life cycle stages which contribute most to the environmental impact of a pair of jeans are the production phases (including the cultivation of cotton) and use**. The most important impact categories for cotton cultivation are water consumption and aquatic eco-toxicity, whereas for the use phase it is energy consumption, human toxicity and household waste associated with disposal. The table below provides an overview of the main impacts and life cycle stages.

Table 4.7 Contribution of different life cycle stages to the main environmental impacts of jeans

Key Impacts	Life cycle phase			Main contributors to the most relevant life cycle phase
	Production	Use phase	End of life	
Climate change		X		The type of energy used by the wash machine.
Energy use		X		Primarily energy consumption required to wash and dry the jeans. Energy use varies depending on the water temperature and washing/drying machines.
Water use	X			The production of cotton demands significant amounts of water.
Eutrophication	X			Use of fertilizers, pesticides and defoliant in the production of cotton.
Human toxicity		X		Use of washing powder.
Waste			X	Cotton jeans mostly disposed in landfills.

Source: ADAME

In terms of leather jackets, the impact profile tends to be concentrated in production phases, with limited impact at the use and end-of-life phases. This is due mainly to the different care procedures for leather, which requires minimal cleaning. Moreover, the product durability varies significantly, and leather is less often disposed of in landfills.

²¹⁰ http://www.icci.com.pk/data/downloads/11/475873083_1.pdf

²¹¹ http://ec.europa.eu/environment/ipp/pdf/eipro_report.pdf

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Table 4.8 - Contribution of different life cycle stages to the main environmental impacts of leather jackets

Key Impacts	Life cycle phase			Main contributors in the most relevant life cycle phase
	Production	Use phase	End of life	
Energy use	X			Due to energy-intensive agricultural methods.
Abiotic depletion	X			Tanning is a raw material intensive process.
Acidification & Eutrophication	X			Volatilization from animal wastes and the use of fertilizers in agriculture are the main contributors.
Water consumption	X			Water is mostly used during slaughtering and tanning.
Waste	X			Tanning produces most volume of the total waste generated.

Another area of difference between the products is related to **allocation issues**. This is especially relevant for the leather jacket case, as leather is a by-product of the meat and dairy industries. The pre-production phases linked to natural materials varies according to each products. For cotton jeans, the material (in this case, cotton) tends to be purpose-grown for use in textile production. However, the raw material in leather jackets (in this case, the skins from animals) is rarely purpose-grown for the production of leather. Rather, leather is a by-product and the agricultural impacts of the LCA do not necessarily accurately reflect the impacts of leather jackets. Nevertheless, in the absence of more refined studies, the impact profile of leather jackets is base on a study that includes agricultural impacts.

The analysis also examined the extent to which the MEEuP approach would take these relevant impact categories into account.

Table 4.9 – LCA analysis of floor covering and implications from the use of the MEEuP methodology

	Most relevant impact categories	Most relevant Life cycle stage(s)	Implications of using the MEEuP EcoReport tool
Jeans	Water consumption Aquatic eco-toxicity Energy use Human toxicity Solid waste	Raw materials - Cultivation of cotton Use - Washing - Disposal	<ul style="list-style-type: none"> ➤ Land use not considered ➤ Water use not well accounted i.e. irrigation water in scarce areas and heated water during use phase ➤ Toxicity does not include pesticides ➤ Allocation is not addressed
Leather jacket	Energy use Waste Land use	Production - Tanning process Raw materials - Fertilizer for feed crops	<ul style="list-style-type: none"> ➤ Land use is not considered ➤ Allocation is not addressed ➤ Toxicity does not address pesticides

Considering the current MEEuP and the EcoReport tool there are certain shortcomings when dealing with natural fibres. However, it is expected to work reasonably well with synthetic fibres, which were not considered in this case study. The main concerns include Abiotic depletion, Acidification and

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Eutrophication. Water and Land use are relevant to these two types of material, since cotton and cattle demand land use in the beginning of the production chain. As MEEuP does not address land use, it is also a potentially problematic aspect.

Existing policy framework and other tools

It is important to note that several of these initiatives are horizontal and cover several stages of the lifecycle. At the early phases, a number of issues are covered by legislation and European initiatives, while mid-process stages are covered increasingly by voluntary agreements. Later stages, that are highly dependent on consumer behaviour or complementary products, are covered either indirectly or by minimum requirements set for complementary products (i.e. washing machines and the use thereof).

Table 4.10 - Summary of policy tools- textiles and leather

No	Name of legislation/policy/standard	Environmental issue/aspect addressed
Raw Materials		
	Registration, Evaluation, Authorization, and restriction of Chemical substances (REACH):	Chemical substances
	Water Framework Directive (2000/60/EC	Standards on water use
	IPPC Directive (IED)	Environmental performance of individual processes in the textiles and leather sector, including chemicals and energy use.
	Regulation on organic production and labelling of organic products (834/2007)	Sustainable sourcing of products
	Global Organic Textiles Standards	Chemical substances, use of pesticides
	Better Cotton Initiative	Chemical substances, use of pesticides
	Biodiversity Action Plan for agriculture	Use of pesticides
	Common Agricultural Policy	Use of pesticides
	Thematic strategy on the Sustainable use of pesticides (COM(2006) 372)	Use of pesticides
Production phase		
	New Biocides Regulation (COM (2009) 267):	Restricts the use of biocidal additives in the treatment process of textiles.
	IPPC Directive (IED)	Environmental performance of individual processes in the textiles and leather sector, including chemicals and energy use.
	Directive on labelling of textiles (2008/121/EC)	Sustainability of inputs
	Environmental Technologies Action Plan (COM(2004)	Development and commercialization of new technologies
	Water Framework Policy (2000/60/EC)	Water use in the production process
	Leather Working Group protocol	Environmental impacts of tanning process
Distribution		
	Directive on Packaging and Packaging Waste (94/62/EC and 2004/12/EC)	Materials waste in the packaging, recyclability

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No	Name of legislation/policy/standard	Environmental issue/aspect addressed
Use phase		
	IPPC Directive (IED)	
	Ecodesign of EuP Directive (2005/32/EC) Energy Labelling	Washing and Drying
	Directive on biodegradability and labelling of detergents(2004/648/EC)	Detergents used in cleaning (cotton jeans)
End-of life		
	Landfill Directive (99/31/EC):	
	IPPC Directive (IED)	Environmental performance of individual processes in the textiles and leather sector, including chemicals and energy use.

Beyond legislation, a number of voluntary, retailer-led initiatives have been identified and play an important mechanism for influencing the global supply chain. However, these voluntary agreements have varying degrees of coverage and are highly dependent on self-selection and voluntary compliance.²¹²

Identification of potential Ecodesign requirements – Analysis and comparison with alternative options

On the basis of the LCA conducted, areas for improvement potential for leather jackets and cotton jeans were identified.

Potential improvements for jeans could include the use of organic cotton, which reduces the environmental impact since it forbids the utilization of chemicals (fertilizers, pesticides, defoliants), and therefore prevents toxic substances from being spread in waters and soils. On the other hand aspects related to the reduction in the frequency or temperature of washing, washing powder consumption and the utilization of washing machines and irons, that consume a considerable amount of energy, are not seen as aspect to be addressed by eco-design requirements. Extending the life cycle of jeans to reduce resources would be beneficial, though this option is difficult to incorporate into an eco-design standard.

Potential improvements for leather jackets could include a requirement on the amount of chromium emissions from the tannery, both in tannery solid wastes and in the waste waters or more generally the adoption of certain production processes on the basis of a certification or standardisation scheme. Addressing the amount of mineral fertilisers used for feed crop appears to reduce of use of ammonia was considered rather excessive although it can be part of a certification scheme. Much of the improvement potential has already been realized at European tanneries, though progress is less certain in non-European locations, especially tanneries in developing regions.

Furthermore, for both products the potential of development an ecological profile in the context of generic requirements was considered. Alternative policy options were also considered, including a business as usual scenario, voluntary agreements, the use of mandatory labelling, and financial instruments.

²¹² http://ec.europa.eu/environment/eussd/pdf/report_green_retail.pdf

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Table 4.11 - Summary table of assessment of Ecodesign-based requirements against alternative options

Option	Effectiveness	Costs (for industry and authorities)	Ease of implementation	Impact on Ecodesign
Ecodesign requirements	High for certain aspects if properly implemented and enforced in global supply chain Energy and water use not possible to address Limited value for toxicity aspects	High administrative and certification costs for industry Significant costs for authorities	Difficult due to complicated and global supply chain Problem due to size of counterfeit Measurement and test methods generally exist	Need to change MEEuP methodology
Voluntary Agreement	Potentially high impacts if high level of participation (but difficult to achieve)	High costs of planning passed onto the industry	Impossible within the context of Ecodesign due to very large number of producers Difficult outside	No expected impact
Mandatory labelling	Low in relation to Ecodesign requirements	High administrative and certification costs for industry Significant costs for authorities	Difficult due to complicated and global supply chain Problem due to size of counterfeit Measurement and test methods generally exist	No expected impact
Business as usual	Limited in relation to minimum requirements applying across the board – Some aspects already addressed	Low - several initiatives currently in place	Easy, as existing schemes would be expanded	No expected impact
Financial Instrument	Grants : Probably low added value unless on a wide scale	Grants: High costs if on a wide scale	Tax: WTO regulations could act as a barrier Possibly difficult to implement	No expected impact

The main conclusion is that there is sufficient scope for improvement based on the introduction of eco-design requirements and focusing on influencing the supply chain of clothes (fibres production or tanning). The presence of existing Eco-labels for a number of textiles – although not for leather products – also supports this conclusion.

Any approach to clothing would require focusing on influencing the global supply chain, and this is true for all clothing types, as the industry is highly globalized, with some national studies citing import rates of 80% for clothing products.²¹³ Production-specific regulations appear to be well developed for domestic production and certain mechanisms and tools for tracking and identifying source materials or assessing the environmental impact of the products already exist. However, due to the highly fragmented supply chain

²¹³ Sustainable Clothing Roadmap. 2011 Progress Report.

<http://archive.defra.gov.uk/environment/business/products/roadmaps/documents/clothing-actionplan110317.pdf>

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and voluntary nature of the labelling schemes, there are significant gaps in coverage and little in the way of enforcement.

Some retailers and other actors in the supply chain have set up voluntary traceability requirements. There is some evidence that industry is supportive of initiatives that would set requirements applying to all products, since a significant issue continues to be counterfeiting and low quality imports²¹⁴. However, counterfeit can also present a significant market surveillance and enforcement problem for both Member States and industry.

Ecodesign requirements could be used to bring improvements on the production of the different types of material used. These requirements would likely need to be specific for the different – or the dominant - type of material used in clothes rather for particular product types. For cotton jeans, examples of cotton-specific industry-led initiatives point to the possibility of enhancing supply-chain approaches.²¹⁵ For leather goods, voluntary initiatives to increase the traceability²¹⁶ of leather suggests that there is sufficient scope for introducing standardized minimum traceability requirements, which could be linked to environmental performance standards. These supply-chain focused mechanisms could be used to support minimum materials requirements for the type of leather to be used in the manufacture of jackets.

On the other hand, use-phase impacts related to consumer behaviour aspects appear to be less possible to influence. Current approaches include the provision of information and guidance to consumers – large parts of which are already done though there are examples of additional measures taken by some companies or retailers.²¹⁷

Given the high number of producers and the highly fragmented supply chain, aggregate compliance costs are expected to be relatively high due to the need to increase traceability of fibre sources, especially at the lower end of the market where margins tend to be low and for the very large number of SMEs the dominate the market. While no reliable figures could be identified to estimate the impact, higher procurement and information costs and additional compliance-related barriers were identified by the industry and are well established in the literature.²¹⁸

There are further challenges to be addressed related to the feasibility of extending Ecodesign requirements to clothing. A key concern has to do with the appropriateness of existing life cycle analysis methods to be used to identify impacts given the high level of uncertainty and the important allocation issues related to the system boundaries of the current LCA approaches. This is especially relevant for leather jackets, as the primary material used, leather, is technically a by-product of a larger industry, the meat industry. However, the Joint Research Centre's Institute for Environment and Sustainability (JRC IES) is working to develop a harmonised methodology for the calculation of the environmental footprint of products. Based on a review of the existing environmental footprinting methodologies, pilot tests, and stakeholder consultations, the process is expected to produce new guidelines on a common methodological approach to assess, the

²¹⁴ Global market review of counterfeit apparel - forecasts to 2014. Just-style. Taken from:

<http://www.reuters.com/article/2008/04/11/idUS170785+11-Apr-2008+BW20080411>

²¹⁵ See, for example, the Better Cotton Initiative: <http://www.bettercotton.org/>

²¹⁶ Tannery Environmental Auditing Protocol. Issue. 5.2.2 July 2011.

[http://www.leatherworkinggroup.com/images/documents/Protocol5.2.2%20\(8%20Septt2011%20SB\).pdf](http://www.leatherworkinggroup.com/images/documents/Protocol5.2.2%20(8%20Septt2011%20SB).pdf)

²¹⁷ Retailers have, in general, implemented a variety of measures to reduce the impact of the global supply chain. See:

http://ec.europa.eu/environment/eussd/pdf/report_green_retail.pdf

²¹⁸ InfoSys. 2010. "Green PLM for Fashion and Apparel." <http://www.infosys.com/industries/retail/white-papers/Documents/green-plm-fashion-apparel.pdf>; BIO IS. 2009. "Towards a Greener Retail Sector."

http://ec.europa.eu/environment/eussd/pdf/report_green_retail.pdf

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environmental performance of products, services and companies based on a comprehensive assessment of environmental impacts over the life-cycle.²¹⁹

It appears that, at least in the short term, promoting and coordinating existing voluntary initiatives of large retailers and brands towards the greening of supply chain and extending information provision, within or outside the Ecodesign legislative framework, could be a solution in the short to medium term.

3. All-purpose cleaners and hand dish wash detergents

The third case study focused on all-purpose cleaners (hard surface cleaners), sanitary cleaners, window cleaners and hand dishwashing detergents. For the purposes of the study the terms detergents is used to refer to the whole product group.

Market size and structure

The total value for the household market for detergents in 2009 was close to €5.2 billion, with the industrial and institutional sector representing an additional €2.4 billion. On the basis of PRODCOM data for the whole detergents market, we estimate that the total volume of detergents sold in Europe was around 3.7 million tonnes. On the base of sales value, household products represent close to 70% of the market and industrial and professional uses the remaining 30%. All-purpose cleaners are most typically sold in liquid form (including sprays) but they may also be sold as wipes which represent a smaller part of the market (10%).

Table 4.12 - Market data

	Market Sales value (million € 2009)	Volume
Household	5186	2.5 bln kgs (estimate)
All-purpose cleaners	1688	
Window cleaners	256	
Sanitary cleaners	1351	
Hand dishwashing detergents	1941	1.2 billion lts (AISE data)
Industrial and institutional	2423	1.3 bln kgs (estimate)
Total	7609	3.7 bln kgs (estimate)

Source: AISE and Eurostat and own elaboration

The detergents sector is characterised by a rather low level of concentration with 4 large multinational companies controlling no more than 50% of the total EU market while, around 130-140 manufacturers represent 80-90% of it.

Main environmental aspects and key life cycle stages

Detergents contain various chemical ingredients such as surfactants (surface active agents) that perform the main cleaning function, but also colorants, preservatives, oxidizing, alkaline and other Volatile Organic Compounds (VOCs). Surfactants are the main type of raw material across the product groups (with the exception of glass cleaners; see Table 2 below). Different raw materials that are used in the final products have specific intrinsic properties, which largely determine their potential environmental impact and adverse effects to human health. Most of the surfactants are relatively toxic to aquatic organisms. Their toxicity is caused by the surface-active properties of surfactants which disturb the

²¹⁹ http://ec.europa.eu/environment/eussd/product_footprint.htm

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transportation of substances (for example oxygen) through biological membranes (for example fish gills). The biodegradability of surfactants varies, depending on the form of the carbon chain. Straight chains are more readily degradable than branched chains while toxicity increases in line with the length of the carbon chain.

Table 4.13 - Average composition of detergents and all purpose cleaners (% of chemical by weight)

	Hand dishwashing detergent – regular /concentrated	All purpose cleaners	Floor cleaners	Glass cleaners
Surfactants	Anionic: 10-20/10-30 Non-ionic: 0-10/10-20 Amphoteric: 0-3/0-5	Anionic: 1-10 Nonionic:1-10 Soaps: 1-5	Anionic: 1-10 Nonionic:1-10 Soaps: 1-5	Anionic: 0-1 Nonionic:0-1
Builders	Citric acid: 0-2	Citric acid: 1-10 Polycarboxylates:0-2	Citric acid: 1-10 Polycarboxylates: 0-2	-
Colourants	<0.1	0-0.1	0-0.1	0-0.2
Fragrances	<0.5	<1	<1	<1
Hydrotopes	0-0.5/0-1	0-0.5	0-0.5	-
Preservatives	0-1	<0.5	<0.5	<1
Solvents				Ethanol: 5-20 Isopropyl alcohol: 5-20
Other	Viscosity controlling agents: 0-0.5	Alkalinity sources 0-10	Alkalinity sources 0-10	Alkalinity sources 0-10 Ph adjusters: 0-2
Water	Balance to 100	Balance to 100	Balance to 100	Balance to 100

Source: www.cleanright.eu

On the basis of information from existing LCA studies reviewed the main environmental impacts of detergents take place in the use phase. In the case of wipe based products the production and packaging stage tends to contribute more. The analysis did not conclude that certain environmental aspects are clearly dominant. An important finding is that consumer behaviour (amount and temperature of water used) is key in terms of the impacts of detergents. A change of water temperature from 41.5° C to 12° C can lead to a reduction in energy consumption of up to 50% and has impact on climate change, air acidification, photochemical smog and even human toxicity.

In relation to industrial uses of detergents, while 90% of the chemical substances used are the same, their concentration and conditions of use leads to different human exposure and different environmental impacts. Industrial users have greater interest – in economic terms but also in terms of safety for their workers - as well as greater capacity –to control energy and water use during the use phase. Industrial detergents are often produced and distributed in greater concentrations and rely on the presence of dilution control system. They also often include chemical substances with poorer toxicity profile in order to achieve the expected efficacy and balancing against the biodegradability of the concentrated specific detergents. The capacity of industrial users to take the necessary protective measures for issues related to the human and environmental toxicity of the chemical substances and the often mandatory advanced

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waste treatment that they have to put in place, can be traded against the need for more biodegradable chemicals.

Considering the possible use of the EcoReport tools of the existing MEEuP methodology for detergents, we conclude that issues related to human and aquatic toxicity would not be taken into account in a proper way without changes to extent the list of substances considered in MEEuP and that, under the current definitions, water use in the use phase may not have been accounted for.

Table 4.14 – Most important life cycle stages per environmental impact for household all purpose cleaners (L: liquid form, S: spray form, W: wipe form)

Impact category	Raw materials	Production	Distribution	Use	End of life	Possible issues from the use of the MEEuP
Total waste				L,S,W	W	
Water usage		W		L,S,W		Use phase not accounted for
Energy usage		W		L,S,W		
Climate change		W		L,S,W		
Acidification		L,S,W				
Ozone depletion			L,S,W			
Photochemical smog		L,S,W		L,S,W		
Human toxicity		L,S,W				Limitations due to limited list of substances covered
Aquatic toxicity		W		L,S,W		
Eutrophication		W		L,S,W		

Existing policy framework and other policy tools

The review of the existing policy framework indicated that the issues of human toxicity and ecotoxicity are already well covered by the EU regulations applying to detergents and chemical substances used in detergents (EU Detergents Regulation, REACH and CLP Regulations). In contrast, issues of resource depletion (materials, water, energy) and climate change are primarily dealt with by voluntary mechanisms put in place by the detergency industry (Charter for Sustainable Cleaning of AISE) and Eco-labelling schemes that focus on the products' design or the information provision to improve consumer habits and are the main areas where eco-design requirements could be developed.

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Table 4.15 – Existing policy tools and main environmental impacts (EU Directives and Regulations in bold)

	Raw Materials production	Production /Packaging	Distribution	Use	End of life
Resource depletion	Packaging Directive	Eco-label Sustainable charter		Eco-label Sustainable charter Cleanright	Packaging Directive
Human toxicity	REACH	REACH, Detergents Regulation Biocides Directive Seveso Directive Sustainable charter	CLP,REACH	CLP, Detergents Eco-label Cleanright	
Ecotoxicity	REACH	REACH, Detergents Regulation Biocides Directive Sustainable charter	CLP, REACH	CLP, Detergents Eco-label	
Climate change		Sustainable charter		Sustainable charter, Cleanright	
Ozone depletion					
Acidification					
Photochemical smog		Eco-label		Eco-label	
Particulate matter					
Eutrophication		Detergents Regulation Eco-label		Eco-label Cleanright	
Hazardous waste		Packaging Directive Sustainable charter	CLP	CLP	CLP, Packaging Directive
Non-hazardous waste		Packaging Directive Sustainable charter	CLP	CLP, Packaging Directive Sustainable charter Cleanright	CLP, Packaging Directive

Identification of potential Ecodesign requirements – Analysis and comparison with alternative options

On the basis of the life cycle analysis made, an Ecodesign based regulation for detergents could include some of the following aspects:

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- Performance levels for normal/cold water temperature (25 C) for hand dish wash detergents or floor surface cleaners that are diluted in water;
- Decrease/manage the dosage used for a standardised job by the design of the product for a set water temperature and inform consumer on a uniform way;
- Reduce the inactive agents in the cleaners to make them more compact without affecting efficiency;
- Ban/control the presence of certain chemicals of high concern (on the basis of the information provided through REACH regulation);
- Requirements on the packaging weight;
- Increased level of recyclability of the product (e.g. refill bottles).

In addition, the introduction of generic requirements requiring the development of the product ecological profile, the provision of information to consumers and the comparison with certain benchmarks was considered.

We need to note that there are possible trade-offs or interdependencies among some of the above provisions. For example, a requirement to make detergents more compact may mean the presence of higher concentration of substances in detergents or, more often, a more stringent classification of products with increased requirements for their transport and sale. The same applies to possible requirements for lowering the water temperature for hand dish wash detergents. In relation to the packaging there are also certain trade-offs with the safety provisions for chemical products.

Furthermore, as already indicated, some of the requirements stated above are already within the scope of other legislation. The level of toxicity of the chemicals included is addressed in the Detergents and Biocides regulation as well as in REACH regulation. In that respect it is neither clear what could be the added value of additional eco-design requirements as well as the appropriateness to extent given that the Ecodesign clearly states the duplication of regulation should be avoided.

Alternative policy options examined were a business as usual scenario including the existing voluntary agreement, the use of mandatory labelling of products on the basis of their performance for a standard job and/or under cold water, a voluntary agreement within or outside the context of the Ecodesign Directive, financial tools in the form of public procurement and the promotion of multi-stakeholder agreements at an EU level.

Table 4.8 below summarises the main conclusions of the comparison with other policy tools. The overall conclusion of this initial analysis is that **the development of Ecodesign requirements for detergents would be possible and should bring added value, particularly in the case of consumer products**. Toxicity aspects would most probably not be considered since there is product specific legislation in this area (REACH, CLP) and it should be ensured that there is no duplication of legislation. The requirements proposed should be possible to set, measure and enforce without significant problems. However, in contrast to the case of EuPs, the aspect of consumer behaviour that plays a key role on the environmental impact will be more difficult to influence besides a possible provision of information or the introduction of complementary labelling. The integration of the existing voluntary agreement of industry (AISE Sustainable Charter) within the context of the Ecodesign Directive appears to provide a similarly effective, and possibly less costly, option given the high level of market coverage.

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Table 4.16 - Summary table of assessment of Ecodesign based requirements against alternative options

Option	Effectiveness	Costs (for industry and authorities)	Ease of implementation	Impact on Ecodesign
Development of Implementing Measures focusing on product effectiveness	Achieve targeted level of material, energy and water use savings at a predicted horizon (assuming effective surveillance and enforcement)	Administrative costs for implementation and enforcement. Compliance costs for production changes and testing – possibly high costs to SMEs	Possible to develop standards. Time consuming	Need for change of MEEuP to cover other issues could also benefit in the revision of existing IMs Possible additional complications/delays for the overall management of the Directive
VA in the context of the Ecodesign	Similar level of savings as in the case of Ecodesign IMs	Low - Low costs for authorities Moderate costs for industry for monitoring VA	Relatively easy and fast to implement on the basis of existing charter AISE	No expected impact
Mandatory labelling (without VA product based approach)	Lower level of effectiveness in relation to IMs depending on consumer awareness Unclear horizon of achieving targets Danger of consumer confusion	Administrative costs for industry and authorities for development and implementation Compliance costs for testing of products low	Possible to develop standards labelling but time consuming Issue of multiple labels in products	No expected impact
Business as usual (including VA with product based approach)	Effectiveness depends on industry participation in VA and incentives – possibly not as effective as Ecodesign	No additional costs to authorities Moderate costs for industry for monitoring VA	Easy to implement as almost in place	No expected impact
Financial instrument	Low effectiveness as public sector represent a small share	Low additional costs (extra costs for more expensive products)	Easy to implement but difficult to reach all public sector	No expected impact
Multi-stakeholder agreements	High according to AISE if done at EU level. Still not as effective as regulation. No guaranteed results ; depends on level of ambition set	Limited administrative costs Costs for change	Flexible - Achievable if adequate stakeholder engagement. No need for new standards	No expected impact

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4. Floor coverings

This case study focused on floor coverings which were chosen to represent the broader category of housing products. It should be noted that the industry generally divides itself into hard coverings (HFC) and soft coverings (SFC). Ceramic tiles are an example of HFC while the others are SFC coverings: Ceramic Tiles, Linoleum, Wood, Vinyl, and Carpet (Nylon and Wool).

Market size and structure

There is a sizable European industry in each of the product groups within the study, as demonstrated in the table below. The concentration of companies within the flooring industry varies widely depending on the product. Reliable figures for the number of products produced (i.e. number of carpets) are not available, as the industry typically refers to the volume of the product (i.e., square metres of carpet). Distribution is normally accounted for in volume rather than in units (i.e. the number of tiles is not normally identified; rather, the volume of tiles is documented).

Table 4.17 - Value of soft floor covering (2006 data)

Product Family	Value of European Industry		Production Volume
	Million €	% on floor covering total (EU 25)	
Hard Floor Covering			
Ceramic tiles	11, 700	--	1.6 Bln m ²
Soft Floor Covering			
Carpets	5, 541	36	1, 125 Mln m ²
Wood floorings	2, 748	17	143 Mln m ²
PVC coverings	1, 700	9	337 Mln m ²
Linoleum coverings	394	2	43 Mln m ²
Laminates ²²⁰	5, 375	34	25 Mln m ²

Sources: LCE Lifecycle Engineering. 2007²²¹

Each product has a distinct set of market dynamics that underpin trends in the market. The major driver of trends is the set of retailers that control the market, which in turn distribute products to professional contractors before the products reach consumers. Indeed, consumer demand is generally funneled through at least two points, the retailers and the professional contractors, before it affects the market. The supply chain that links the producers is dominated by intermediaries that include building designers (interior designers, architects, and engineering firms) affect the selection of building materials through building design decisions. Thus, the product group includes products that are generally purchased at several stages along the supply chain between the early stages of the lifecycle and the ultimate consumption by the consumer.

The concentration of companies within the flooring industry varies widely depending on the product. Within some product categories, such as carpets, the industry composition is characterised by a few large industrial producers together with many small producers within the fashion industry. Other product categories such as resilient flooring comprising several sub-categories are characterised by a relatively low number of producers.

²²⁰ Data referred to the entire EU production of laminates, not only for floor coverings.

²²¹ LCE Lifecycle Engineering. 2007. Study for the HFC Criteria Revision and SFC Criteria Development: <http://www.apat.gov.it/certificazioni/site/files/Ecolabel/1st%20Background%20Document.pdf>

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Main environmental aspects and key stages of the life cycle of the product

The BIO IS²²² report identified that the use phase was the most significant aspect of energy consumption and other environmental impacts generated from housing. It also found that the construction phase was significant and that the end of life was of less importance. However, these findings appear to differ from the profile of floor coverings, as the use phase is almost unaffected by flooring. Where the floor coverings had a more significant impact was in the construction phase.

Table 4.18 - Characteristics of a typical production process

Product	Main Production Steps	Major Issues
Ceramic Tiles	Ceramic tiles are produced using a kiln and involves batching, mixing and grinding, spray-drying, forming, drying, glazing, and firing.	<ul style="list-style-type: none"> ➤ potential volatile pollutants contained in the mix of raw materials ➤ energy use in production
Linoleum	Linoleum floorings consist of a hard layer of linoleum compound on a backing cloth of jute. The compound is a mixture of linseed oil, colophonium (a resin from coniferous trees), limestone, ground wood, ground cork, and pigment. Linseed oil and colophonium are oxidised and then mixed with the other ingredients. Titanium dioxide is used as the main pigment. The mixture is pressed with a roller onto a woven backing of jute and dried. It is then finished with an acrylate dispersion layer. The cutting waste is recycled back into the process of the next batch of linoleum.	<ul style="list-style-type: none"> ➤ Fertilizer in the production process ➤ Pigments and dyes could contain harmful substances
Wood	The manufacture of wooden flooring is relatively simple. After felling the trees, the trees are transported to sawmills where barking, sawing to the desired dimensions and drying take place. However some types of wooden flooring would require an intermediate processing/treatment stage. This may include the application of oil or lacquer.	<ul style="list-style-type: none"> ➤ Environmental implications of logging. ➤ Processing could include use of toxic substances ➤ International transport
Vinyl	Vinyl is made from mixtures of polyvinyl chloride, plasticiser, limestone, stabilisers, pigments and other additives. Polyvinyl chloride is made from sodium chloride, ethylene and using electrical power. Some products have a final surface layer of polyurethane. The cutting waste is recycled into other products.	<ul style="list-style-type: none"> ➤ Potentially harmful substances in the materials ➤ Glue or other fasteners used to install vinyl flooring could contain toxins
Carpets	The manufacture of tufted carpet can be split into three processes: 1. Tufting: in this phase of process a multi needed tufting machine is used to form the pile in the backing cloth.	<ul style="list-style-type: none"> ➤ Crude oil use in polyester ➤ Dyeing process potentially harmful to employees, and residual dyeing compounds remain in carpet during use

²²² Bio Intelligence Services. 2010. Technical support to identify product categories with significant environmental impact and with potential for improvement by making use of ecodesign measures

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Product	Main Production Steps	Major Issues
	2. Dyeing: the product is coloured unless the yarn was dyed beforehand. 3. Backing: the backing is then coated in adhesive and a foam or secondary backing applied.	➤ Volatile organic compounds and formaldehyde

Source: Study for the HFC Criteria Revision and SFC Criteria Development, 2007.

The analysis of LCA studies available in relation to this category of products highlighted the most relevant impact categories and the stage in the lifecycle with the greatest impact on the environment. The analysis also examined the extent to which the MEEuP approach would take these relevant impact categories into account. The results are summarized in Table below.

Table 4.19 – LCA analysis of floor covering and implication from the use of the MEEuP methodology

	Most relevant impact categories	Most relevant Life cycle stage(s)	Implications of using the MEEuP
Ceramic tile	Climate change Human toxicity Acidification	Production <ul style="list-style-type: none"> - Preparation of the body - Fusion of the frit (ceramic tile component) - Firing of the glazed body 	➤ Toxicity only limited to metals and does not include a fate and exposure step
Wood	Energy consumption Photo-oxidant formation	Production <ul style="list-style-type: none"> - Kiln drying Use <ul style="list-style-type: none"> - Solvents - Fixing/laying 	➤ No guidance on biogenic carbon uptake. ➤ Fate and exposure step is missing for VOC's. ➤ Land use not included.
Vinyl	Climate change Energy consumption	Production <ul style="list-style-type: none"> - Vinyl End-of-life <ul style="list-style-type: none"> - incineration 	➤ No energy reclamation at the end-of-life
Linoleum	Eco-toxicity Acidification Photo-oxidant formation	Raw materials <ul style="list-style-type: none"> - Cultivation of linseed 	➤ Land use not included. ➤ Water use not well addressed. ➤ Toxicity only limited to metals and does not address pesticide use. No guidance on biogenic carbon uptake.
Wool	Land use Climate change	Raw materials <ul style="list-style-type: none"> - Production of wool 	➤ No guidance on how to allocate environmental impacts amongst different products. i.e. wool is a by-product
Nylon	Fossil fuel depletion Climate change	Raw materials <ul style="list-style-type: none"> - Production of Nylon 	➤ Insufficient data

Concerning the MEEuP a main consideration that would have to be addressed is the lack of an accepted LCA approach to deal with the range of impacts inherent in flooring. As mentioned in the case of clothing

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products, the Commission/JRC-EIS is working towards the establishment of a standardized approach to environmental footprint assessment.²²³ Overall, the analysis indicates that a future Ecodesign measure would need to account for the increasing use of post-consumer products (i.e. products that use recycled materials or that increase the reuse of waste).

Moreover, waste and water use aspects are not well reflected and this is a significant shortcoming especially for hard floor coverings considering that the impacts related to maintenance and cleaning are significant. Land use issues are also problematic in the case of bio-based products, such as linoleum, wood and wool. This includes indirect land use change as well as loss of biodiversity.

The initial analysis of the appropriateness of using Ecodesign approach to address the environmental impacts of floor coverings leads to a number of conclusions:

- The MEEuP approach misses many of the non-energy related impacts, such as toxicity and VOC exposure;
- MEEuP is not effective for natural products due to difficulty of full lifecycle analysis with land use issues;
- Significant failure to take post-consumer and recycled products into account (wood, vinyl, carpets, linoleum, ceramic tiles);
- Extension of product durability not taken into account;
- Existing technology could be better leveraged through regulations;
- International dimension undermines efforts in Europe; risk of outsourcing unsustainable practices;
- Standardisation and R&D/ innovation efforts are currently being pursued;
- Little is known about the performance and relevance of the use phase of the various flooring options. For instance, carpets could possibly demand electricity and filter materials due to vacuum cleaning, and this produces solid waste. In comparison, many hard applications require water, solvents, and chemicals for wet cleaning and produce waste water. A comprehensive analysis of this subject is recommended. In general, there is little LCA information about carpeting, a main type of flooring application. Moreover, the relative contribution of particular flooring types to indoor air quality is a significant human factor that is not linked to the MEEuP approach.

A primary finding is the MEEuP approach that forms the basis of the current scope of Ecodesign would require revision. Thus, for many of the products likely to be grouped within the housing products category, the MEEuP approach would be similarly inappropriate and would need revision.

Existing policy framework and other tools

The table below summarizes the various measures in place to address the environmental impact of the various types of floor coverings. The floor coverings product group is a diverse and complicated set of individual industries, with different sector dynamics, material inputs, manufacturing processes, installation needs, and thus diverse impact categories. Due to the range of material inputs—ranging from biotic materials found in nature as well as produced commercially to processed chemicals—the range of regulations that apply to floor coverings is necessarily broad.

²²³ http://ec.europa.eu/environment/eussd/product_footprint.htm

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Table 4.20 – Existing policy tools and main environmental impacts

No	Name of regulation	Main aspect regulated/addressed
Raw Materials		
	Eco Label (hard floor covering only)	Material inputs, sustainable sourcing
	National labelling schemes	Certification of sustainability, absence of toxicity (lead)
Production phase		
	IPPC Directive	Mutual acceptance of national regulations, various aspects; sustainable use of natural resources.
	Environmental Technologies Action Plan	Research and development/commercialization of newer, more sustainable flooring materials
	French Decree N. 2011-321	Design of flooring materials
	Building rating systems (LEED , BREAM)	All aspects of flooring
	Germany AgBB system	All aspects of flooring, including VOC and toxicity
	European Eco-label	Covers toxicity and energy consumption
	REACH (Regulation 1907/2006-Registration, Evaluation, Authorization, and Restriction)	Toxicity and eco-toxicity of chemicals used during the production of chemicals
	CEN/TC350 (various)	Assessment of environmental performance and EPD related to various impact categories
	EU ETS,	Carbon emissions
Use phase		
	Energy Efficiency in Buildings	Efficiency of product, contribution of home energy use
	The Construction Product Directive	Attestation of Conformity with various aspects, including hygiene, health and the environment; energy efficiency;
	CEN/TC350 (various)	Assessment of environmental performance and EPD related to various impact categories
	Various national systems	Various aspects of toxicity, contribution to energy efficiency of buildings, VOC
End-of-life		
	Eco label	Disposal standards
	Building rating systems (LEED and BREEAM)	Lifecycle approach to various aspects of flooring
	Waste Directive	Disposal and landfill standards
	Construction Products Directive	Disposal and landfill standards

As outlined, in addition to regulations, a number of industry-led initiatives are driving improvements in the sector, mainly made up of labels and certification. According to industry representatives, a total of 350 labels within this field exist.

Identification of potential Ecodesign requirements – Analysis and comparison with alternative options

Based on the analysis of the lifecycle of the products, potential regulations could focus on the following aspects:

- Requirements concerning the use of sustainably-sourced materials

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- Requirements on the material input and amount of waste in the production process
- Materials requirements in the case of processed or manufactured flooring
- Requirements concerning the toxicity and other impacts of fasteners and sealants used in installation
- Indoor air quality standards, including limiting formaldehyde emissions and volatile organic compounds (VOC)
- Maintenance standards regarding cleaning detergents and solvents, and extended product durability
- End-of-life requirements including reuse and enhanced recyclability

Alternative approaches were also examined in light of the potential improvements to the product category, including a baseline ‘business as usual’ scenario, mandatory labelling, voluntary agreements, and the use of financial instruments.

Table 4.21- Summary table of assessment of Ecodesign-based requirements against alternative options

Option	Effectiveness	Costs (for industry and authorities)	Ease of implementation	Impact on other EU product policies including existing Ecodesign
Ecodesign requirements	Likely to accelerate current market trends	Costs for development of research studies and consultation. Significant compliance cost to industry	Need to develop new standards. Significant monitoring costs	Significant revisions to the MEEuP.
Business as usual	Gradual improvement in line with market pressures	Medium costs to industry and public certification scheme	Existing system requires further development On-going standardization process in industry	No impact
Mandatory labelling	Little change from current	High cost to industry, transfer of resources to labelling agencies	High administrative costs, additional costs for industry	No impact
Voluntary agreement	Gradual but inconsistent improvement	Planning costs nearly equal to regulation for industry, plus additional monitoring costs	Very difficult due to fragmented market and risks of substandard imports	No impact
Financial instruments	Long term change, medium impact	High costs to authorities, transfer of resources to industry	Low, straight-forward expansion of existing programmes	No impact

The analysis led to the conclusion that there is, in theory, scope to use Ecodesign requirements for most floor covering products that could accelerate existing market trends. The presence of a number of Eco-labels for most of the products is also a supportive aspect in this direction. However, there are a number of initiatives and policy tools – including EU legislation - that can also provide answers to many of the issues considered and any Ecodesign requirements should avoid overlap with existing standardization or building certification systems. From the industry point of view, any initiative on floor coverings should aim to utilise

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existing industry-led standardisation process (ISO/CEN) and the increasingly prominent building system certifications that affect the choice of materials rather than develop a different set of requirements.

Still, Ecodesign requirements could help address issues such as minimum performance, material selection, and enhanced product recyclability at the end-of-life stage. A key question is the timing of such intervention. It may be more appropriate that the existing initiatives are fully implemented before assessing the extent that gaps remain and how Ecodesign can bring added value.

Another important point is that given the very different characteristics of the different types of floor coverings and their environmental impacts, any Ecodesign intervention would necessarily need to focus on the sub-product level. For biotic materials (or bio-based materials) the major impacts occur in the initial raw material extraction and initial production stage. Linseed, wool, and wood based products would require standards that are specific to natural fibers. While an Ecodesign approach appears feasible, it would need to be tailored to the type of material and not the type of product or application. Floorings with more complex production processes would be better candidates than types that are sold as essentially raw materials. Thus, production-heavy types such as laminate flooring, ceramic tiles, and some types of carpet appear to be appropriate for specific requirements, while those that are less processed would benefit from generic requirements or process-specific requirements, such as on the particular treatment options specific to each type of product (e.g. treatment types for wood).

There are also certain implementation constraints at this stage given the increasingly globalized supply chain of many floor coverings. Certain Ecodesign requirements – especially those related to the initial life cycle stages - will have to rely on documentation or certification introducing significant costs to firms – especially SMEs- but also important challenges to market surveillance.

5. Passenger cars

Passenger cars have been selected to represent the mode of transport sector in the study. The product scope focused on vehicles designed and constructed for the carriage of passengers and comprising no more than eight seats in addition to the driver's seat that represents category M1 under Directive 2007/46/EC²²⁴.

Market size and structure

The total number of registrations of new passenger cars in 2010 was 13,360,599. The EU has a positive trade balance in the case of passenger cars, that in 2008 was close to net exports of 2.8 million net exports of units (3 million imports against 5.8 million exports) and in 2009 it was around 1.2 million units (2.3 million imports against 3.5 million exports)²²⁵. The total car fleet in EU23 (excluding Bulgaria, Romania, Malta and Cyprus) in 2008 was close 223 million cars with an average car age of 8.2 years^{226 227}.

The passenger cars' market is rather concentrated with the four larger manufacturers representing more than 50% of the total market and ten controlling close to 94% of the EU passenger cars market. Furthermore, a key element of the sector is the advanced level of supply chain linkages between brand

²²⁴ Relevant ISO standards: AA Saloon ISO Standard 3833-1977, term No 3.1.1.1, but including also vehicles with more than four side windows. AB Hatchback Saloon (AA) with a hatch at the rear end of the vehicle. AC Station wagon ISO Standard 3833-1977, term No 3.1.1.4 (estate car) AD Coupé ISO Standard 3833-1977, term No 3.1.1.5 AE Convertible ISO Standard 3833-1977, term No 3.1.1.6

²²⁵ http://www.acea.be/images/uploads/files/20100518_2010_KEY_FIGURES_5_Trade.pdf

²²⁶ http://www.acea.be/images/uploads/files/20100427_EU_Motor_Vehicles_in_Use_2008.pdf

²²⁷ The life cycle studies use a life cycle of 10-12 years.

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manufacturers/assemblers of cars and the more than 8,000 suppliers of components and equipment in Europe and (more so) around the world.

Main environmental aspects and key life cycle stages

The transport sector, and passenger cars in particular, have a substantial contribution to almost all environmental aspects with the possible exception of eutrophication. According to EIPRO study, the contribution in the total is usually in the range of 10-20%. The analysis of results from the IMPRO study and other input provided by industry indicates that the use phase of the car (tank to wheel) is the key contributor to most environmental aspects followed by raw material extraction and the production stage.

Table 4.22 - Impacts of car along the different phase of the life cycle - synthesis from available studies – (Highlighted cells indicate high relative share in total impact) - No detailed data for toxicity

Impact categories	Raw materials	Production		Use Phase		End Of Life	Implications of using the MEEuP
		Car ²²⁸	Spare Parts	Well to Tank	Tank to Wheel		
Resource depletion	49%	51%	0.1%	0%	0%	49%	-Problems with allocation of recycling in the EOL phase -Limited scope in terms of mineral resource depletion
Global warming	8%	1%	13%	78%	0%	8%	
Ozone depletion	3%	1%	96%	0%	0%	3%	
Photochemical smog	15%	4%	63%	19%	0%	15%	
Acidification	27%	1%	69%	2%	0%	27%	
Eutrophication	32%	1%	60%	6%	0%	32%	
PM 2.5	23%	3%	74%	0%	0%	23%	
Primary energy	9%	2%	11%	79%	0%	9%	
Bulk waste	39%	2%	25%	0%	34%	39%	
Human toxicity							
Eco-toxicity							

Examining the issues from possible use of the MEEuP EcoReport tool in the case of passenger cars, the analysis does not indicate significant limitations. The possible shortcomings identified would arise in the data collection phase in relation to:

- Allocation: EcoReport does not allow flexibility to allocate recycling in EOL.
- Recycling: the EcoReport provides fixed calculation rules for the allocation of credits from recycling

Other possible areas concern the limited scope in relation to resource depletion that may ignore mineral resource depletion aspects.

Existing policy framework and other policy tools

The review of the existing regulatory instruments in relation to passenger cars suggests that most relevant environmental aspects are already within the scope of existing EU Directives or Regulations. The only area that seems to be less well covered concerns the extraction of raw materials.

Table 4.23 - Summary of regulatory instruments that apply to passenger cars

No	Name of Regulation/Directive	Environmental issue/aspect addressed
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²²⁸ Includes both raw material extraction and car assembly.

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No	Name of Regulation/Directive	Environmental issue/aspect addressed
Production phase		
1	DIRECTIVE 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)	Mandatory standards concerning air, water and soil emissions during the production of cars' components and their assembly
2	Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	Toxicity and ecotoxicity of chemicals used during the production of chemicals
3	DIRECTIVE 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC	Mandatory standards concerning the emission of VOCs (photochemical ozone formation) in the production process.
4	DIRECTIVE 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (EU ETS)	Market based tool setting maximum greenhouse gas emission in the production of cars
Use phase		
5	REGULATION (EC) No 443/2009 setting emission performance standards for new passenger cars	Mandatory standard on CO ₂ and other emissions produced during the cars' use (climate change, acidification)
6	Directive 1999/94/EC relating to the availability of consumer information on fuel economy and CO ₂ emissions in respect of the marketing of new passenger cars.	Mandatory labelling concerning the use of resources (fuels) CO ₂ emissions during the cars' use
7	Regulation (EC) No 715/2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information.	Mandatory standard concerning non-CO ₂ emissions (NO _x , CO, PM, evaporative emissions) produced in the use phase
8	Regulation (EC) No 661/2009 of the European Parliament and Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles, their trailers and systems, components and separate technical units intended therefore	Requirements on the integration of certain functions in cars to help consumers reduce fuel consumption
9	Directive 2006/40/EC of the European Parliament and of the Council of 17 May 2006 relating to emissions from air conditioning systems in motor vehicles	Mandatory standard on emissions produced from air conditioning systems in cars (climate change)
10	Commission Directive 2007/34/EC amending Council Directive 70/157/EEC concerning the permissible sound level and the exhaust system of motor vehicles.	Mandatory standard on the noise created during the use of motor vehicles
11	DIRECTIVE 2009/28/EC on the promotion of the use of energy from renewable sources and amending and	Minimum standards on the characteristics of the fossil fuel consumed during the use

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No	Name of Regulation/Directive	Environmental issue/aspect addressed
	subsequently repealing Directives 2001/77/EC and 2003/30/EC and DIRECTIVE 2009/30/EC amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC.	of cars
12	Regulation 1222/2009 on the labelling of tyres	Mandatory labelling concerning
End-of life		
13	DIRECTIVE 2000/53/EC on end-of life vehicles	Mandatory standard setting minimum requirements for the collection and treatment of end of life vehicles and the prevention of hazardous materials.
14	DIRECTIVE 2005/64/EC on the type-approval of motor vehicles with regard to their reusability, recyclability and recoverability	Mandatory standard setting minimum requirements on the level of reusability and/or recyclability of materials used in vehicles.
15	Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators	Waste - Collection and treatment of End of life batteries, prevention of the use of hazardous materials

It is not possible for us to assess the effectiveness of existing policy framework and the relevant tools in relation to the various impacts. According to the industry associations (ACEA), the legislations concerning the CO₂ emissions and the provision of information to consumers on fuel economy have already led to important emissions reductions. In conjunction with the relevant specification on fuels, provide an effective framework for the reduction of all types of emission. In the case of the end of life related legislation the view is that recycling of vehicles is already taking place and that the Directive did not add much.

In addition to the mandatory standards, financial instruments are also used in most Member States to support energy efficiency and reduction of emissions. The taxation of cars on the basis of their CO₂ and other regulated emissions is one instrument. Furthermore, Member States have periodically used financial incentives (subsidies or tax exemptions) for the purchase and/or use of green vehicles with low emissions (including hybrid or electric cars) or for the replacement of old passenger cars with new more efficient cars. In parallel, there are a number of financial support instruments towards the development of more energy efficient cars, including R&D on green cars, the development of more efficient technologies or the use of ICT systems to enhance eco-driving.

Identification of potential Ecodesign requirements – Analysis and comparison with alternative options

On the basis of the life cycle analysis conducted, the following Ecodesign requirements were identified are relevant for passenger cars:

- Reduction of the weight of cars;
- Type of tyres used (green tyres) and the use of tyre pressure monitoring systems;
- Requirement on the fuel efficiency of cars' engine and transmission systems;
- Requirement for the ability to run of high level of biofuels;

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- Requirement for the level of recycled and recyclable materials used in cars;
- Requirement on the efficiency level of air-conditioning systems in cars;
- Requirement on the use of systems to guide driver behaviour.

In addition, the possibility of generic requirements for the development of the ecological profile of the cars, the provision of information to consumers and the adoption of measures against certain benchmarks was considered.

The alternative options considered include the **business as usual scenario** (existing trends and market forces, existing legislation and labelling schemes on cars and tires), **mandatory labelling** (cover additional aspects besides CO₂ emissions, bio fuel suitability, noise with the introduction of a color coded scheme in all Member States) and **voluntary agreements (within or outside the context of Ecodesign)**.

The conclusion is that while most of the above requirements could bring substantial improvements and would not be difficult to implement and enforce, most of them are already covered by existing legislative measures or industry practices. WE do not expect that the development of additional requirements will bring added value unless it replaces and tightens the relevant existing regulation. Thus, the cost-effectiveness of a possible extension for passenger cars is not expected to be significant.

The business as usual scenario seems to be able to achieve most of the important environmental improvements identified. Any additional aspect not currently covered by policy tools could most probably be regulated in the future with a separate regulation. The promotion of voluntary agreements towards setting more ambitious targets should also be considered with a certain level of skepticism given the rather poor experience in relation to emission reductions during the early 2000s. Industry representatives themselves suggest that it is most probably a not effective tool. The option of mandatory labelling is feasible from the implementation point of view but the effectiveness depends on the clarity of the scheme and there is a danger for consumer confusion if too many aspects are included. Existing studies indicate that the results of environmental information on consumer choice is often rather limited²²⁹

²²⁹ http://www.ieep.eu/assets/660/Study_on_consumer_information_on_fuel_economy_and_CO2_of_new_cars.pdf

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Table 4.24 – Passenger cars: Comparison of alternative policy options

Option	Effectiveness	Costs (for industry and authorities)	Ease of implementation	Impact on Ecodesign
Ecodesign Implementing measures	Level of additional improvement most probably marginal as most aspects are already covered by regulation or used in practice Possibly significant in the case of weight requirements but with trade offs	High administrative costs for amending Directive, and developing IMs Implementation/enforce ment costs for authorities Some compliance costs but limited due to existing legislation	Depends on the type of requirements. Most standards and measurements methods exist although not accepted LCA method Danger of overlaps if existing legislation remains	Need for change of MEEuP to cover other issues Additional resources with possible complications/delays for the overall management of the Directive
Business as usual	Existing regulation already covers the key aspects. Certain minor aspects missed	No additional costs to industry and authorities	No additional issues	No expected impact
Mandatory labelling	Unclear - Effectiveness of existing label scheme limited Possible danger of consumer confusion if too complicated	Medium-high administrative costs for industry and authorities for development and implementation Compliance costs for testing of products low	Relatively easy - standards for labelling already exist Possible difficulties for aspects not currently addressed	No expected impact
Voluntary agreement outside Ecodesign	Questionable (based on past experience from voluntary agreement on fuel economy and emissions)	Costs for industry to establish VA and costs for achieving target (depending on level of ambition)	Expected to be easy to implement	No expected impact
Voluntary agreement inside Ecodesign	Similarly effective as introduction of IM with increased flexibility – overall limited additional effects	Low costs for authorities (mainly related to the initial development)	Relatively easy to implement and monitor Agreement on targets issues to address and targets may be difficult	Possibly changes to Annex required

4.2.5 Lessons drawn from the case studies

On the basis of the analysis, the following broader lessons were extracted:

- In contrast to ErPs, for a large number of non-ErPs the main environmental impacts are related to the initial stages of the life cycle. Among the products considered, this is particularly the case for food products, clothing and certain floor coverings. Ecodesign requirements can be expected to bring substantial improvements to these categories of products provided that they effectively target the inputs and processes used for the production of these products and contribute to the greening of their supply chain.
- There are important practical considerations for the development of such approaches. Existing tools methodologies and standards are, in general, not available to support the implementation of

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mandatory requirements at this stage. Having said that, there is in most areas work in progress or voluntary schemes that can help in the developments of the necessary tools.

- Furthermore, in some sectors (e.g. food sector) the use of life cycle analysis is still rather contentious and is considered problematic as a basis for the development of mandatory requirements or of the ecological profile of products. While there is work in progress in this direction, the practical experience from the use of voluntary initiatives or labelling schemes such as the Grenelle initiative is still rather limited.
- There are important economic considerations related to compliance with Ecodesign requirements, especially for those products with complex supply chains and fragmented structures of the market and those dominated by SMEs. In all cases, it is expected that the costs of implementation can be substantial for large part of the firms.
- Products that are covered by Eco-labels tend to be, in general, better candidates for the development of generic or specific eco-design requirements. This is both because they are products already identified as having important impacts – although this is not necessarily a rule – but more important because certain requirements have been developed and tested in practice. Having said that, the implementation of eco-labels that are voluntary involve important certification costs (including site visits etc.) that interested firms are willing to assume for certain marketing, and not only, gains. Such costs may often not be acceptable from the point of view of industry in the case of minimum requirements where firms gain no marketing advantage.
- For the majority of the products considered any possible extension will require changes to the current MEEuP methodology and the EcoReport tool. There is work in progress both in relation to the MEEuP itself – update to the MEErP with certain additions and improvements – but also by the Commission (environmental footprint study) that could prove useful in the case of an extension and a need to revise the MEErP.
- The promotion of voluntary industry initiatives (e.g. for cleaners) or the development of industry standards (e.g. for floor coverings) targeting the development of ecological profile of products can provide alternatives that will be easier to implement and can still cover substantial parts of the market. In some cases this can take place within the context of the Ecodesign (e.g. cleaners and probably other chemicals). In some others the level of market concentration and the supply chain structure could make that more difficult.
- As far as industrial products are concerned, the all purpose cleaners case study suggests that the potential for additional improvements through eco-design requirements may be reduced in comparison to consumer products. Issues such as energy, water and resources use that are also reflected into costs of operation measures are more often in place. At the same time, there are different balances and possible trade-offs between the use of certain substances and required or desired performance. Clearly such issues can vary greatly among different types of products and is not possible to draw broader conclusions.
- For certain product categories – such as passenger cars - existing legislation is already covering most of the relevant environmental aspects. For such products the development of eco-design requirements may be feasible and relevant but the actual added value is most probably limited unless the Ecodesign replaces those legislations or operates as a framework.

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4.3 Role of the MEEuP methodology (EcoReport tool) in a possible extension of the Directive

As part of the study we also made an analysis of the MEEuP EcoReport tool in order to identify potential issues related to a possible extension to non-energy related products. In this section we provide the main conclusions of the analysis. The more detailed analysis is provided in Annex F of the report.

The MEEuP methodology – and the MEErP update - has been based on a policy approach to environmental aspects following based on Annex I of the Ecodesign Directive. It is more pragmatic and hands-on than more common LCIA methodologies. The proposed ILCD method uses the ‘substitution methodology’ for the end-of-life phase, whereas the MEErP-EcoReport end-of-life accounting is primarily based on the recycled content (i.e. the material flows as they are) with only modest credit for recyclability of future waste. The substitution methodology assumes that those materials (metals mainly) that can technically be recycled do not have an environmental or resources impact beyond the recycling effort and the effort of substituting (from a mix of virgin and recycled material) a small fraction of the disposed material that is truly unrecoverable. As such the ‘substitution methodology’ is not interested in the material and resources flows as they are in real-life, nor in the stock-effect in a growth market that places practical limits on the volume of waste material that is disposed and thus can be recycled.

Beyond that point, our analysis of the earlier MEEuP methodology and the respective EcoReport rules indicated that certain issues would still have to be addressed for non ErPs. These include:

1. The lack of a fate step in several impact categories. Fate is an important aspect in assessing the impact of emissions as it distinguishes between substances with a short or a long lifetime and substances with different exposure routes. It is an essential step in the IPPC and WMO methods that are at the basis of GHG and Ozone layer policies and legislation, and in legislation on toxic substances etc. Without a fate step misrepresentations of the importance of emissions can become a serious issue of concern
2. The very limited range of substances covered in the toxicity assessment - although this may work better with EuPs, there may be problem with, for instance, the assessment of pesticides in agricultural production chains. A significant extension of substances covered will be necessary
3. The lack of guidance when addressing land-use: Land use is mentioned as an important aspect in the MEEuP report, but no guidance is given, and this could again be problematic when assessing bio-based products.

The input of the Commission services is that all above aspects have been properly addressed in the revised version of the EcoReport of the updated MEErP that was recently completed by VHK Consultants. It is still possible that additional changes may be necessary in the case of a possible extension but we do not see any obvious reason why such changes cannot take place wither within the context of the MEErP or as part of a new methodology. In any case, we do not consider that a possible need for changes to the MEErP methodology should not be considered as a reason for not extending the Directive. On the contrary, any such a change may also benefit a revision of the Implementing Measures for EuPs and ErPs if it allows for a better identification and assessment of non-energy related issues.

4.4 Impact on the Ecodesign and contribution to sustainable consumption and production policy

- The possible implications – positive or negative – that a decision of an extension and the processes involved may have to existing Ecodesign Directive.

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- The added-value that such a decision may bring towards fulfilling the stated policy objectives of the European Union as reflected in the SCP/SIP action plan and other relevant policy documents.

Concerning the impact on the existing Ecodesign Directive, the discussions with stakeholders helped identify a number of considerations that are analysed below:

- For a number of stakeholders – mainly Member States authorities and business federations – an extension of the Ecodesign is considered premature. As it is suggested, there is not enough experience at this stage on the actual effectiveness and efficiency of the implementation of the existing Directive that would justify its extension. Clearly, the current evaluation – along with the review of the MEEuP – represents the first effort to assess and improve the effectiveness of the Directive but it suffers from the absence of the necessary data to provide a more thorough assessment on the effectiveness. From an evaluation perspective, additional time is indeed necessary before one can clearly establish whether the uses of Implementing Measures– for which we do not have much experience at this stage – works effectively, what are their advantages and disadvantages. There is almost no experience on the use of generic requirements, working with other environmental aspects besides energy use, the potential contribution of voluntary agreements or how the revision process can provide a more or less dynamic character to the implementing measures. Clearly, one can draw lessons from other legislations but building experience from the Ecodesign in order to assess the appropriateness of its extension appears a necessary step. Concluding, one could say that after 6 years in force (either for EuPs or ErPs) it is only now that the necessary experience starts building up and there are still several aspects where there is limited or no experience at all.
- There are also certain risks posed in relation to the implementation of the current Directive governing ErPs. A large number of stakeholders point to the possible loss of momentum and to further delays to a process that is long and resource intensive with an important backlog of Implementing Measures. If the extension is not accompanied with extra resources – at the European and national level - and the necessary political support and action to address the existing backlog and to strengthen the implementation of the Directive, such concerns seem legitimate. Representatives of environmental and consumer groups and SMEs will also need to be further supported in order to be able to follow the extended discussions. Member States’ authorities will also be further pressed in terms of resources for surveillance and enforcement for new products that deviate greatly from the profile of EuPs. Furthermore, for a number of product categories additional stakeholders – at the European and national level – will need to be involved in the various stages, some of them with limited experience in the mechanisms and procedures. Unless the existing procedures are protected and more resources dedicated there is indeed a danger for further delays and disruption of the process.
- A small number of stakeholders made reference to absence of clear political goals in relation to issues such as material use and resources efficiency that can be an important obstacle when developing requirements under the Ecodesign. In relation to that, the recent Communication on the roadmap to a resource efficient Europe can be seen as providing greater guidance.²³⁰ Although it is still far from offering clear targets, it does propose a headline indicator on the level of material consumption while, according to the Commission, work on indicators and targets has been launched. A key question is to what extent the presence of such clear political goals for other aspects is necessary for any decision of an extension. Theoretically we do not see any clear obstacle for an extension of the Directive since it only provides a framework for the development of Implementing Measures- or other tools. The extension does not require the setting of specific targets. The introduction of the relevant measures

²³⁰ http://ec.europa.eu/environment/resource_efficiency/pdf/com2011_571.pdf

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can wait until the political targets are more clearly set and certain requirements can also be set even in the lack of numerical targets. It is also conceivable that the extension of the Ecodesign can serve as a mechanism to push for reaching agreements on political targets on issues such as resource efficiency or recyclability of products.

- From a rather different perspective, for some of the products there are already regulations or Directives that cover some of the key aspects. Article 15 of the Directive indicates as one of the criteria for developing Ecodesign requirements the absence of relevant Community legislation. In the case of passenger cars most of the important environmental aspects and life cycle stages are already within the scope of existing regulation. Furthermore, the IED Directive covers a large number of sectors. For both cases, industry stakeholders refer to the danger of duplication of legislation and overlaps.

Considering the overall support to a possible extension, the survey of stakeholders conducted in the context of the study, suggested rather diverging views. While clearly not representative, Table 4-8 suggests that industry representatives and some Member States authorities are negative, while other stakeholders such as NGOs, and Ecodesign experts are rather more positive.²³¹ The picture is less clear in the case of means of transport, mainly on the basis of the rather important environmental impacts of this sector.

Table 4.25 – Do you consider it appropriate to extend the Directive to cover non-energy related products and modes of transport?

		EU/ national industry association	Individual manufacturer	Environment/ consumer group	MSs authority/ agency	Ecodesign expert	Total
Non-ErPs	Yes	3	6	2	4	5	20
	No	19	7	1	4	1	32
	No opinion	6	0	0	3	0	9
		28	13	3	11	6	61
Means of transport	Yes	5	7	0	5	5	22
	No	12	2	1	2	0	17
	No opinion	11	5	2	3	1	22
		28	14	3	11	6	61

Source: CSES survey

An alternative option to the extension that was also proposed by a few stakeholders – Member States and NGOs – is the introduction of a separate legislation – in the form of a Regulation or a Directive- focusing exclusively on non-Energy related products. The main benefits of such an approach are that it will allow making use of the existing experience while avoiding most of the risks for the existing Ecodesign described earlier. On the other hand, this will not resolve the issue of resources needed for two different pieces of legislation – including also the costs for transposition of the Directive from Member States. It also does not resolve the issue of absence of political targets discussed earlier or the possible duplication of legislation, if it were to apply to all products. It also goes against the basic principle of simplification of EU legislation. Hence, while a possible alternative, it cannot be considered as offering substantial advantages in comparison to a possible extension.

²³¹ Consultant firms involved in the preparatory studies and firms providing Life Cycle support to individual firms.

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Concerning the second question, the broader policy contribution, a key consideration for the added-value of the Directive is the extent that it can bring added-value towards addressing market failures in relation to the environmental impact of non-energy related products. The five case studies indicate that there are indeed such failures and the existing studies – including the EIPRO analysis – highlight the important share of non-ErPs in most important environmental aspects. The studies also indicate that energy using products represent only a small part of the total impact of industrial production and product consumption. The case studies also show that, in general, the product design stage is very relevant in identifying appropriate solutions and through which supply chains can become greener. Clearly, the extent that this is possible varies greatly and has to be made at a product-by-product basis. The extension of the Directive by itself does not address those aspects but provides the context under which such an assessment can be made and the tools – self regulation, information provision requirements and mandatory standards – under which such market failures may be addressed. In that respect, the extension of the Directive can be seen a way to improve the available policy toolbox without necessarily leading to an immediate adoption of legislative action.

Having said that, the Ecodesign is clearly not the only mechanism to achieve this goal and in certain cases it may not be the most effective. In relation to consumer behaviour product design requirement may not always offer effective solutions. This is most probably the case with food and drink products (e.g. refrigeration temperature or cooking habits) or textiles (washing frequency or temperature). It is also often the case with the use of detergents - washing habits (water use and temperature) are not possible to address directly- although product design may play a greater role in “enforcing” the adequate dosage. Still, other policy tools such as labelling, awareness raising or energy and water prices can be more effective.

4.5 Analysis of product categories for possible extension of the Ecodesign Directive

Step three of the analysis utilises the conclusions of the case studies to examine a broader range of product groups that could be considered as of priority in the case of a possible extension of the Ecodesign Directive. Our assessment was based on an assessment of the extent that the specific product categories fulfil the key requirements in Article 15 of the Directive including:

1. **The market size of the products and the relative significance of the environmental impacts:** information in relation to these two key criteria is based on PRODCOM and other market data and the results of the EIPRO study that covered a range of environmental impacts and allows for a relative ranking of products. The rule of thumb used to include products for further consideration was that their share in the different environmental impacts categories should be greater than 0.1% of the total. This is a rather arbitrary cut-off but was selected to make the task manageable. It is also based on a review of the relative shares of EuPs products that are already covered by the Ecodesign. According to the EIPRO data, it applies to the great majority of products with the exception of fans and office machines. Still, in certain cases, products with less than 0.1% share were considered.
2. **The improvement potential** of the specific product category from the setting of Ecodesign requirement - Specific information on this aspect has been rather limited to a small number of products. As a result this assessment is rather problematic. When specific information is not available, the presence of an Eco-label can be considered as one indication that there is potential for improvement for the specific product category. Eco-labelled products perform, in principle, much better than the average product in the market. Following the input from stakeholders we may need to revise this approach.

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3. **The presence of other EU legislation covering the specific aspect:** In our assessment we made the assumption that EU legislation covering a specific issue is effectively covering it and the introduction of Ecodesign requirements would create a danger of duplication. We appreciate that this may not be the case or that additional measures could be justified. However, in the absence of relevant studies or other relevant input we consider that it is appropriate that existing legislation is given priority and that, if there are weaknesses in implementation, the focus should be on strengthening existing tools.
4. **The feasibility of Ecodesign requirements (e.g. enforceability, market surveillance) and the expected administrative and other costs for firms** - On the basis of the case studies and other inputs during the course of the study we consider that Ecodesign requirements the compliance with which can be monitored and tested through product testing is easier to implement than requirements that may require certification or declaration schemes. This does not mean that the latter is not possible but it is more difficult to implement, there is less experience and there are also greater administrative costs, especially for SMEs.

In addition, some lessons from the case studies were also taken into consideration in the analysis. These include:

- Products that are covered by Eco-labels are, in general, better candidates for the development of generic or specific eco-design requirements since certain requirements, albeit not always product specific, have been developed and tested in practice.
- The possibility that voluntary industry initiatives can be quite effective, especially in the case of industries with relative high level of concentration or where large players can have an influence on the supply chain.
- That in the case of industrial products there are possible trade-offs between performance and environmental impact while, at the same time, that users of products have greater incentives for more efficient energy, water and resources use.

Given the importance of the environmental impacts

We should note that this exercise has a very preliminary character and it based almost exclusively on readily available data and information. The EIPRO study and the analysis made in the BIO IS²³² study were the main sources of information utilised. Given the limited resources available it has not be possible to cover at the same level all product categories and the list of non-ErPs products considered is not exhaustive. In some cases we did not have information available to make a proper assessment for all products. We expect that the input of stakeholders will assist in improving the analysis and the conclusions reached.

Food and beverages

All studies reviewed indicate that the category of food and drink products is the category with the greatest share of environmental impacts. According to EIPRO study results, the total category of foods and drinks contribute 20% to 30% of the total impact of product and services consumption in Europe for most

²³² BIO IS (2010), Technical support to identify product categories with significant environmental impact and with potential for improvement by making use of Ecodesign measures- Final Report - April 2010

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environmental impact categories, but up to 58% in the case of eutrophication. All main food product categories rank in the top 25 in terms of their share in the different environmental aspects examined. Considering the lifecycle of food and drink products the main conclusions concerning the impacts are:

- The 'extraction of resources' or the primary production stage (agriculture, fisheries) is responsible for most of the significant environmental impacts of food production.
- The manufacturing of food, feed and drinks has a significant impact on the environmental performance of processed products.
- Distribution or 'transport' is significant only in special cases.
- The impact of packaging is dependent on the product and the type of packaging.
- The retail phase of products is, in general, not significant.
- The role of the consumer can be significant in terms of waste, energy and water use but may not always be possible to influence.

Furthermore, the data available from PRODCOM suggest that all product categories have sizeable markets as required by article 15 of the Directive.

The Directive also requires that the measures taken should bring important environmental improvements. In order to fulfil this objective, the analysis of the cases indicates that any Ecodesign measures would have to address the impacts related to the early life cycle stages of agricultural production and/or animal husbandry. This is a conclusion that applies to almost all food product categories with the possible exception of products where the processing part is important (e.g. beverages or ready meals). For the later, the use of requirements related to manufacturing, use and disposal may, in some cases, bring significant improvements. We should note here that, according to the analysis of BIO IS on the data from the IMPRO study on meat and dairy products, even if all improvements related to crop product and animal husbandry, production, packaging and retail sales are taken into consideration the total aggregated improvements should not be expected to be more than 20% reducing their share in the aggregated impact in the EU from 24% to 19%. The authors of the study suggest that this is not significant. However, we should point out that the given the overall impact of food products, a 20% reduction is still a significant improvement.

However, there are other important obstacles concerning the development of Ecodesign requirements indicating that they should not be considered as high in priority list:

- So far, there is no experience in the development and use of requirements focusing on input-related impacts of products. The focus has been on requirements related, primarily, to the use phase. Conformity with any Ecodesign requirements for food and drink products will rely on the provision of information by suppliers that will ensure that products comply with set specifications. The producers or importers of food products will need to be able to certify that the inputs used in their products have been produced by their supplier in certain ways and practices so that the final product meets the minimum requirements set. In the case of specific minimum requirements they may also need to know the values of the relevant environmental impact indicators. Thus, unless there is direct control of the upstream production stages, it will require producing and exchanging more environmental information across the operators of the food chain. It will also require the use of declaration or certification schemes. Therefore, market surveillance on such requirements would probably require considerable

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resources to be effective with a higher risk of non-compliance in comparison to current Ecodesign requirements based on product testing.

- There is no example of mandatory requirements for placing food and drink product on the market relying on such declaration or certification schemes at EU or national level. The only precedent is the sustainability criteria covering biofuels under the Renewable Energy and Fuel Quality Directives which is not mandatory for placing biofuels in the EU market.²³³ Demonstrating compliance with the sustainability requirements on biofuels can rely – among other alternative options that include Member States implementation and multilateral or bilateral agreements - on the recognition of voluntary schemes²³⁴. These are reviewed and accepted on the basis of a set of criteria. We do not have information on the effectiveness of this approach and the possible problems. According to information provided by the Commission services, seven such voluntary schemes were recently approved.
- Existing schemes and tools (e.g. carbon trust footprint, Marine stewardship council label, Grenelle law labelling, Milieukeur) have been used on a voluntary basis for the labelling of products. As indicated in section 4.2.4 in the sausages and processed meat case study there is no experience of their use as a basis for mandatory requirements that may set the basis for access to the EU market.²³⁵
- The food and drinks supply chain is global and rather fragmented (large number of producers, presence of intermediaries) with important share of SMEs and local/artisan producers. This can make the process complex and rather costly, especially for the smaller size firms. This may not apply equally to all product categories as in certain product categories there is significant concentration of the industry, with a few large manufacturers or retailers (supermarkets) with private labels that control high shares of national markets (see also Table 4.9 below).
- While the Ecodesign requirements apply equally to EU-based and non-EU based producers – thus not providing any basis for preferential treatment - it is possible that WTO issues will be raised. While product specific requirements (so called PR-PPMs) – such as the use of fertilizers for crops - are generally accepted, non-product specific requirements are generally not considered acceptable²³⁶ with a danger of going against WTO requirements (requirement for equal treatment for both EU and non-EU manufacturers).

Concluding, the adoption of Ecodesign-based requirements for foods and drinks products cannot be considered as of high priority at this stage. On a theoretical basis it appears feasible to develop and implement such requirements on the basis of some form of declaration or documentation. At a more practical level, the adoption of generic requirements requiring an analysis of the ecological profile and an assessment of alternative options may be a more feasible option in comparison to specific requirements setting minimum values. Still, it would rely on the presence of harmonised methods for assessing the product environmental impacts over its lifecycle, and the availability of data in order to set performance benchmarks and for firms to conduct a simplified LCA analysis. There are important implementation and

²³³ It is only a prerequisite for the biofuels to count towards the EU targets of biofuels use or to benefit from Member States' support schemes for biofuels.

²³⁴ Where an economic operator can deliver evidence (certificate) from such a recognised voluntary scheme, all EU Member States must accept this proof.

²³⁵ More detailed analysis on the experience from the use of these tools is also available in Annex C1 (sausages and other processed meat products case study) under the analysis of the current policy framework.

²³⁶ Designing greener electronic products: building synergies between EU product policy instruments or simply passing the buck?, International institute for industrial environmental economics at Lund University, Report for European Environment Bureau (EEB), Analysis of the EuP, RoHS and WEEE Directives

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enforcement issues and potentially high costs for firms, particularly SMEs. . Furthermore, a certain level of experience and relevant conclusions from the use of the various voluntary labelling schemes (such as Grenelle) is necessary. Given the overall importance of food and drinks products, other policy tools – particularly those focusing on primary production and consumer use – should be promoted in the meantime. Measures within the context of the Common Agricultural Policy that will strengthen the link of support with environmental practices, the promotion of existing voluntary schemes for good agricultural practices and a streamline of labelling and consumer information schemes can bring important impacts.

Possible priority food and drink product categories

Beyond this general conclusion we also considered whether there are any specific product categories that, from an implementation perspective, could be seen as having greater priority among the broader food product group in the case of a possible extension. The case studies pointed to two other relevant criteria:

- The relative level of processing : In those products with a relative higher level of processing we consider there is a even greater scope for achieving environmental improvements in relation to energy, water use, emissions and waste that are under the direct control of the manufacturer but also easier to monitor and enforce;
- The level of market concentration as an indication of the capacity to influence – through supply chain requirements – the raw material extractions stage (i.e. feedstock productions and/or livestock breeding). It is an indication of how easy it would be for the food processors or retailers to respond to Ecodesign requirements by setting specifications further up the supply chain. It also provides an indication of the potential for a voluntary scheme that would cover the large share of the relevant market.

Table 4.26 summarises the information collected in relation to a range of food and drink products considered in relation to the criteria discussed earlier. The review of a number of sources on market structure indicates great variation in the market structure depending on the country that does not allow for clear conclusions. The share of private labels is also an increasing trend, nowadays having market shares between 15-40% across the EU Member States. On the basis of the data available, the following products could be considered as priority among food and drinks although further analysis is necessary.

- Bottled and canned soft drinks;
- Beers and spirits;
- Confectionary (sweets, gums)

They are all products with a certain level of processing involved and characterised by relatively high levels of market concentration. Their environmental impacts are not as important as in the case of meat or dairy products but they still have an important contribution to the total. Another possible category is that of processed foods, cereal and potato chips but we have no market concentration data available. Finally, ice cream products also fulfil the above requirements but their share in the total environmental impact is rather limited.

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Table 4.26 – Environmental impacts, market size and structure and role of processing of food and drinks products

Product category	Environmental impacts Percentage share of total ²³⁷								Market (2007) (kg or lts)	Role of processing	Market concentr.
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.			
Meat products	10.3	19.3	6.1	7.2	8.8	7.1	8.0	11.5	24 billion	Low	Low CR10 ²³⁸ = 20-30%
Sausages & Processed meat	2.5	4.8	1.4	1.8	2.2	1.7	1.9	2.8	13 billion	High	Low CR10=29%
Dairy products total	5.3	10.9	3.8	4.2	5.9	4.2	4.7	5.9	67 billion		
<i>Milk</i>	2.4	4.9	1.7	1.9	2.6	1.9	2.1	2.6	45 billion	Low	N.d.
<i>Cheese</i>	2.1	4.3	1.5	1.6	2.3	1.6	1.8	2.3	10 billion	Low	Medium CR4 ²³⁹ =30%
<i>Frozen dairy products/ Yogurt etc.</i>	0.6	1.1	0.4	0.5	0.6	0.5	0.5	0.6	8.7 billion	Medium	n.d.
<i>Ice cream</i>	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	3 billion	Medium	Medium-High CR4= 58%
Fruit & vegetables	2.1	1.9	1.6	2.0	2.7	1.8	2.0	1.8	30 billion	Low	Medium CR4=20-40%
Table oil & Frying fat	1.3	1.8	0.9	1.0	1.7	1.1	1.2	1.0	53 billion	Low	Medium CR10= 48%
Beverages	1.9	2.0	1.6	2.2	2.2	2.1	2.2	1.8	199 billion		N.d.
<i>Bottled and canned soft drinks</i>	0.9	0.8	0.8	1.1	1.0	1.2	1.2	0.9	10 billion	Medium	Medium CR10= 50%
<i>Alcoholic drinks</i>	0.9	1.2	0.9	1.1	1.1	1.0	1.1	0.8	38 billion	High	Beer/spirits High CR10: 65% Wine CR10: 10%
Bakery	1.9	7.6	1.6	1.8	2.5	1.8	1.9	1.8	32 billion	High	Low CR10= 23%

²³⁷ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

²³⁸ CR10: Market share of the top ten (in terms of sales) firms

²³⁹ CR4: Market share of the top four (in terms of sales) firms

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Product category	Environmental impacts Percentage share of total ²³⁷								Market (2007) (kg or Its)	Role of processing	Market concentr.
	GWP	Eut r	AD	HT	EcoT	OD	PO	Acid.			
Coffee & tea	0.7	0.9	0.6	0.7	0.9	0.8	0.7	0.5	3.3 billion	Low	N.d.
Grains & pasta	1.1	4.0	1.1	1.1	1.4	1.2	1.0	0.9	84 billion	Low	CR4= 38%
Fish & fish products	1.1	0.7	1.0	0.7	0.6	0.8	0.8	0.8	3.5 billion	Medium	N.d.
Jam & Sweet products	0.7	2.0	0.6	0.7	1.6	0.6	0.7	0.7	39.5 billion	Medium	Confection. CR10= 69%
Processed food, cereals, potato chips	1.3	3.4	1.0	1.3	1.7	1.4	1.4	1.2	7.8 billion	High	N.d.

Source: Data on environmental impacts from EIPRO study; Market data from BIO IS, PRODCOM and industry associations; Data on concentration from Food For Thought²⁴⁰ and Commission studies²⁴¹

Consumer products

Given the wide range of products falling under the general consumer products category we considered a number of products sub-groups driven by the information available in the sources identified including the EIPRO study but also the presence of European or national eco-labels.

Clothing, textiles and accessories

This product sub-group includes apparel and other clothing products, textiles, footwear and other accessories such as bags. Among those products, **apparel**, **footwear** and possibly certain categories of textiles (e.g. curtains) appear to be the categories that could be candidates for extension. They all have relatively high share in terms of environmental impacts although apparel represents the most significant product category.

Considering the improvement potential, both IMPRO study and our own case study suggest that Ecodesign requirements related to the raw material and production stage (e.g. use of fertilisers, type of fibres used and knitting technologies in the case of apparel) can bring substantial improvements. Furthermore, for both apparel and footwear there is an EU Eco-label available.

However, as indicated in the clothing case study, we do expect important implementation issues due to global character of the supply chain and the large number of small size producers. Furthermore, the use phase, such as frequency and temperature of washing and efficiency of washing machines, or the extent of recycling are generally more important in terms of bringing improvements. These are aspects that cannot

²⁴⁰ <http://www.fft.com/>

²⁴¹ http://ec.europa.eu/economy_finance/publications/publication15234_en.pdf ;
http://ec.europa.eu/enterprise/sectors/food/files/study_privlab04042011_en.pdf ;
http://ec.europa.eu/enterprise/sectors/food/files/competitiveness/competitiveness_study_en.pdf

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be influenced by the design of the products while they are addressed by other regulations (e.g. Ecodesign requirements for washing machines).

More generally, beyond the issue of crop production and live stock breeding that is mainly covered by the Common Agricultural Policy, the other key aspects related to apparel and footwear production fall within the scope of EU legislation. This includes the REACH Regulation and IED Directive for the production process in relation to the toxic substances used – and possibly released – and the emissions during production. It also includes the Packaging and Packaging Waste Directive and the Landfill Directive concerning the waste created from clothes and shoes. Overall, we consider that while there is potential for the use of the Ecodesign requirements, these product categories cannot be considered as high priority product.

Finally, we do not consider that other products categories such as accessories are appropriate for Ecodesign. Besides their limited environmental share, in their majority produced by artisans and craftsman and vary greatly in the materials used the development of eco-design requirements could be extremely difficult.

The same applies to leather products whose overall share in the total environmental impact is rather limited. At the same time, as indicated in the case study for leather products, there are important practical issues in terms of monitoring and enforcing Ecodesign requirements that will have to focus on the animal breeding and the tanning process. These will have to be monitored and enforced on the basis of manufacturers' declarations, standards or chain of custody schemes.

Table 4.27 – Environmental impacts, market size and coverage by eco-labels for clothing, textiles and accessories

Product category	Environmental impacts Percentage share of total ²⁴²								Sales volumes (2007)	Eco-labels
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.		
Apparel	1.8	3.9	1.6	2.1	5.0	2.5	2.4	1.8	8.7 billion items	EU Eco-label Blue Angel
Footwear	0.3	0.3	0.2	0.3	0.3	0.5	0.4	0.3	1 billion items	EU Eco-label Blue Angel
Textiles (Carpets and rugs, cordage and twine, curtains and draperies, textile bags)	0.3	0.6	0.3	0.4	0.8	0.7	0.5	0.3	0.2 billion items	EU Eco-label Nordic Swan Blue Angel
Accessories (Fasteners, buttons, needles, pins, women's handbags and purses)	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.07 billion items	-

²⁴² GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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Product category	Environmental impacts Percentage share of total ²⁴²								Sales volumes (2007)	Eco-labels
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.		
Leather products (Leather goods, leather gloves etc.)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.04 billion items	Nordic Swan

Source: EIRPO and BIO IS study

Consumer chemical products

The consumer chemicals products considered include cleaners and detergents and other sanitations products, personal care/toilet preparation products (soaps and shampoos, oral hygiene products, cosmetics and hair dyes), pharmaceuticals and household plant protection products. Their environmental impacts most often concern the impacts from raw materials extraction-production and/or the use phase (toxicity issues, eutrophication and acidification from wastewater, energy and water use in some cases). Issues of packaging material and disposal are also often relevant.

In terms of market size and environmental impacts related to these products, these product categories appear to fulfil the minimum criteria in terms of sales and relatively high shares in the total environmental impacts according to the EIPRO study (see table below).

In relation to **detergents and sanitary products**, the case study suggests that they represent a product group with potential for coverage under the Ecodesign. While the important aspects related to the toxicity of chemicals (human and ecotoxicity but also allergies etc.) are already covered both from the side of general consumer safety as well as from specific chemicals legislation (REACH, CLP, Detergents, Biocides, Cosmetics etc.), there is still scope related to the share of inactive agents, amount of water required per average job and performance in cold water (energy use), resources aspects and recyclability and weight of the packaging used. In relation to the latter, the Packaging Directive already covers important aspects of this²⁴³. All categories are covered by European or national Eco-labels that provide an important starting base for the setting of requirements but also are in indication of the improvement potential. We conclude that all purpose cleaners and detergents represent a group that could be considered as being of high priority even though, as suggested in the case study, voluntary approaches could be equally effective and easier to implement.

Considering the case of **toilet preparations** the existing EU eco-label on soaps covers the use of dangerous chemicals substances, the level of biodegradability, the impact on the aquatic environment, the level of packaging waste and the efficiency of the product in relation to its main function. Many aspects related to the properties of the chemicals used (human toxicity and ecotoxicity but also allergenic properties etc.) are already within the scope of existing regulation (REACH, CLP, consumer protection) but also packaging (Packaging Directive). Aspects related to the efficiency of the product that may lead to reduced water use or not require warm water can still be considered. The same applies to the design of the packaging that can lead to reduced use of resources. It is not possible to properly assess the potential savings of such measures – although the presence of an Eco-label is a positive indication. However we consider that for

²⁴³ As in other parts of this analysis, our reference to the coverage of a certain issue by EU legislation does not mean that the issue is effective. In most cases such information has not been made available.

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these products consumer behaviour is even more critical and possibly even more difficult to change.²⁴⁴ On the other hand, as in the case of detergents, we do not expect that there should be significant problems of enforceability or excessive implementation costs. Overall, the specific product group appears to be of medium priority for a possible extension.

Other consumer chemicals products such as **pharmaceuticals and plant protection products** are considered as being less conducive to the use of Ecodesign requirements. While they are products with an important share in a number of environmental aspects their design is being directed towards the efficacy and safety of the final products for health protection. Furthermore, their life cycle environmental impacts are affected by the substances used whose properties are key for their medical efficacy and safety. There is, as a result, almost no scope for re-designing these products. Setting requirements on the manufacturing process to reduce any environmental impacts is considered more appropriate.

Table 4.28 – Environmental impacts, market size and coverage by eco-labels for consumer chemicals

Consumer chemicals	Environmental impacts Percentage share of total ²⁴⁵								Market size (kgs)	Ecolabels
	GWP	Eut r	AD	HT	Eco T	OD	PO	Acid		
Detergents and sanitations goods	0.2	0.1	0.3	0.3	0.2	0.6	0.5	0.2	2.5 billion	EU Eco-label Nordic Swan
Toilet preparations (shampoos, hair dyes, oral hygiene products, cosmetic)	0.3	0.1	0.4	0.4	0.3	0.6	0.5	0.3	>1.5 billion	EU Eco-label Nordic Swan
pharmaceuticals/drugs	0.7	0.4	0.7	0.7	0.6	2.3	0.9	0.7	1.4 billion	-
Pesticides/plant protection	0.4	0.2	0.6	0.7	1.5	3.2	0.8	0.4	1.3 billion	-

Source: EIPRO and BIO IS study

Furniture

The product category of furniture includes a large number of household and office furniture (from wood, metal, leather or plastic). Furniture products have an important contribution to all categories of environmental impacts considered in the EIPRO study, being in the top 15 of the list considered under EIPRO in all aspects. They also represent 1.5% of the average total household budget in the EU and – put together – more than 1.6 billion tonnes are sold annually according to PRODCOM (not including imports).

A key issue in the case of furniture is the important role of the raw materials and, less so, the production stage. As in the case of other categories of products considered, significant improvements can take place only if the requirements can influence these initial stages of the life cycle. This is the target of some of the existing European and national eco-labels already present for mattresses and/or furniture (Nordic Swan, Blue Angel, Milieukeur, Marque NF Environment). They focus on a range of issues involving the chemicals

²⁴⁴ It is considered rather difficult to influence use or temperature of amount of water per use as it is also a matter of individual comfort and behaviours. Energy efficiency in this area is probably better achieved through boiler and tap efficiency measures.

²⁴⁵ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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used in the production process (e.g. glues or polishes for wood, textile dyeing) and in the final product (e.g. additives in plastics), the origin of raw materials like wood, the recyclability and durability of the products. All above appear as possible and relevant Ecodesign requirements although we do not have more information to assess the expected improvement potential. The presence of the Eco-labels could be seen as an indication of improvement in relation to the average product in the market. In the case of wood based furniture – or products made mainly of wood - aspects related to the origin of the wood material could be based on documentation/certification possibly supported by chain of custody schemes such as the existing voluntary FSC²⁴⁶ and PEFC²⁴⁷ schemes.

However, such requirements may introduce a greater level of bureaucracy and administrative costs than other aspects – use of chemicals or recyclability - that can be based on a declaration of the manufacturer or product test. On the other hand, we consider that generic Ecodesign requirements focusing on the development of the ecological profile of the furniture products on the basis of a simplified life cycle analysis using secondary data and certain benchmarks should be possible to establish. Large size retailers of furniture (e.g. IKEA) are already applying simplified forms of LCA and set requirements to their suppliers.

In terms of existing legislation, certain aspects are already under the scope of EU legislation including the production process for most types of materials (REACH and IED Directive) or the Waste Framework Directive for the end-of life of furniture products. According to the BIO IS analysis, the existing legislation provides rather adequate coverage of some of these areas. Still, we consider that among non-ErPs furniture products have relatively high potential as a priority category. However, any possible Implementing Measure would have to set different requirements depending on the type of material used or the key function.

Mattresses and bedsprings

A second group of products considered here are mattresses and bedsprings. This is a product with significant market size (close to 47 million item sold in 2007 according to PRODCOM) but with relatively limited share in the total environmental impacts according to the EIPRO study (not more than 0.2% in any single category). Mattresses and bedsprings are covered by the EU Eco-label. According to the LCA study conducted for the EU Eco-label²⁴⁸ energy, greenhouse effect, acidification, waste, smog and human toxicity are the main issues related to the production, use and end of life stages. The Eco-label sets requirements on the chemicals used in the production of mattresses (VOCs and other toxic chemicals for the production of foam, glues, flame retardants, dyes, cleaning chemicals, moth repellents) and the impact on human health and the environment during the production and the use phase. It also addressed the durability of mattresses. Certain parts, such as the use of chemicals, are covered by existing regulation such as REACH as well as the IED Directive for air emissions. However, aspects such as the durability of the product and the recyclability of the material can still be part of Ecodesign requirements. Furthermore, generic requirements focusing on the development of the ecological profile of mattresses can also be included on the basis of a simplified LCA. In most respect the enforcement can be made on the basis of product testing or declaration of manufacturer (in relation to requirement on the production). Concluding, we consider that despite the rather limited share in the total environmental impacts, mattresses and bedsprings should be considered as ErPs with a relatively high potential for the development of Ecodesign requirements in the case of a possible extension.

²⁴⁶ Forest Stewardship Council, http://www.fsc-uk.org/?page_id=5

²⁴⁷ <http://www.pefc.co.uk/about-pefc/about>

²⁴⁸

http://ec.europa.eu/environment/ecolabel/ecolabelled_products/categories/pdf/mattress/bed_mattresses_report.pdf

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Houseware

The houseware product category includes a wide range of products such as cutlery, table and kitchenware, glass products and other household goods with different characteristics and ecological profiles. While less important in comparison to furniture in terms of their share in the total impacts according to the EIPRO study, houseware products still have a significant contribution.

In general, according to the BIO IS study, the raw materials extraction and the production stage is the key life cycle stage. The use phase and end of life do not contribute significantly to the impact of those products that, generally speaking, are not thrown away by consumers. Considering the potential for Ecodesign requirements, we believe that there is probably limited scope for affecting the environmental impacts of these products as the raw materials' selection is not a subject of product design but mainly consumer taste and desired function depending on the material (e.g. different use of kitchenware made of metal, glass or china). Requirements for increased level of recyclability or longer life cycle could still be introduced but it is not possible to assess the improvement potential. Thus, despite the fact that total product category has sizeable environmental impacts and market size, we think that this product category cannot be considered as high priority.

Table 4.29 – Environmental impacts and market size for furniture, mattresses and houseware products

Product category	Environmental impacts Share of total impacts ²⁴⁹								Market data (2007) (items)	Eco-labels
	GW P	Eutr .	AD	HT	EcoT	OD	PO	Acid		
Household and office furniture	1.2	0.7	1.0	1.5	1.6	1.8	1.5	1.1	1.6 billion	Nordic Swan, Blue Angel, Milieukeur, Marque NF Environment
Mattresses and bedsprings	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	47 million	EU Eco-label Blue Angel Nordic Swan
Houseware (cutlery, table and kitchenware, glass products and other household goods)	0.6	0.9	0.6	0.8	0.9	1.5	0.9	0.6	147 billion	-

Source: EIPRO and BIO IS studies

Toys

Another possibly relevant consumer product category is toys. Toys are covered by a number of eco-labels. The Nordic Eco-label covers rattles, teething toys, and activity toys made of various materials for children under the age of 3. Building blocks, dolls, puzzles, electric cars and trains can also be Nordic Eco-labelled although some of them fall under the energy using products category. Besides the health and safety

²⁴⁹ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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requirements that are already covered by regulation (use of chemicals) there are also requirements concerning the use of materials (e.g. textile, paper, wood) that could be produced in an environmentally sustainable way and the recyclability of the packaging material. These could also be the base for Ecodesign requirement. We do not think that there are substantial obstacles in developing similar Ecodesign requirements and, from a practical side, compliance can be tested at a product level. Clearly, there may be variations depending on the main material used.

On the other hand, according to the EIPRO study the environmental impact of toys is rather limited. The data indicate that toys represent around 0.1% for almost all impact categories. Furthermore, the data also include certain categories of energy using products. In terms of market size, this product exceeds the indicative 200,000 units stated in Article 15. On the basis of PRODCOM data over 3.9 billion units were sold in 2010. On the basis of this information, we consider that toys have the potential to be covered by Ecodesign requirements in the case of an extension but cannot be considered as high priority products.

Table 4.29 – Environmental impacts and market size for furniture, mattresses and houseware products

Product category	Environmental impacts Share of total impacts ²⁵⁰								Market data (2010)	Eco-labels
	GWP	Eutr.	AD	HT	EcoT	OD	PO	Acid.		
Toys (games, children vehicles , dolls and stuffed toys)	<0.1	<0.1	<0.1	0.1	0.1	0.2	0.1	<0.1	3.9 billion units	Nordic Swan, Blue Angel

Housing products (i.e. products used in house construction including do-it yourself products, paints and varnishes, floor coverings)

Under the housing products group a wide range of products are included. In our analysis we considered products used for housing construction (e.g. paints and varnishes, glues and adhesives, sealants, fillers, floor care products) and floor coverings. Other relevant categories include wall-papers and woodchip wall coverings.

Chemical products

Most housing chemicals are already covered by a European or a national eco-label. The European Eco-label covers paints and varnishes, the Nordic Swan eco-label covers all categories while there are also standards for paints, adhesives and sealants under the Blue Angel scheme. From that perspective, these products can already be considered as fulfilling some basic requirements for the development of generic or specific requirements.

Relevant data are not available for all of the above categories. In terms of the market size – while not measured in units – they do represent a rather sizeable market. However, the data from EIPRO and BIO IS study on **paints and varnishes** is that their overall share to the total environmental impacts is less than 0.1% among a category of 60 products. As a result they cannot be considered as high priority products. Furthermore, as in the case of cleaners, there is existing regulation that covers most, if not all, aspects of

²⁵⁰ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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human and eco-toxicity and the use of VOCs. The existing European eco-label provides certain requirements in relation to the use of resins and pigments used but also sets performance characteristics of the paints related to use (e.g. spreading rate, wet scrub resistance, adhesion, durability in relation to weather) that can affect resources depletion. On that basis, we consider that generic requirements on the ecological profile of the products but also certain specific requirements should be possible to establish that will be possible to monitor and enforce through product testing or third party certification. Thus, despite their relatively low environmental impacts, paints and varnishes could be considered as of medium – rather than low - priority in the case of a possible extension.

Table 4.30 – Environmental impacts and market size for housing chemicals

Product category	Environmental impacts Share of total impacts ²⁵¹								Market data (2007) (kgs)	Market value (2007)	Eco-labels
	GWP	Eutr.	AD	HT	EcoT	OD	PO	Acid.			
paints and varnishes ²⁵²	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	18 billion	33.6 billion	Nordic Swan, Blue Angel, EU Eco-label
Glues, adhesives ²⁵²	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4 billion		Nordic Swan Blue Angel

Source: EIPRO, BIO IS studies

Floor coverings

The case study indicates that all categories of floor coverings (hard and soft) are sold in substantial volumes of million square meters or even billion – in the case of hard floor coverings- of surface annually. With the exception of carpets that have rather sizeable environmental impact, there are no specific data on the share of floor coverings product group in the EIPRO study. The data on environmental impact of the relevant categories - stone (that includes tiles) and forestry products (that includes floorboards) – suggests that neither of them represents more than 0.1% in any of the five product categories examined. However, stones are only part of the hard coverings that also include various types of tiles. Similarly, floorboards are only part of the soft coverings that includes also other types like rubber, linoleum, laminate. Thus, while individual types of covering may not have sizable environmental impact, we expect that the total impact of soft and hard floor coverings is significant.

Considering the implementation, the case study suggested that for most types of floor coverings could be considered for a possible extension and that the presence of a number of Eco-labels is a supportive aspect in this direction. However, there are also a number of initiatives (standardization through ISO/CEN or the building certification systems) and policy tools – including EU legislation - that provide answers to many of the issues considered any Ecodesign requirements and it important – at least at this stage – to avoid overlap with work in progress. Furthermore, at least in the case of product where impact are mainly in the initial life cycle stages there are certain implementation constraints as monitoring and enforcement will have to rely on documentation or certification that can introduce significant costs to firms – especially

²⁵¹ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

²⁵² Industrial and consumer

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SMEs- but also important challenges to market surveillance. Thus, floor coverings do not appear as a high priority product category.

Table 4.30 – Environmental impacts and market size for housing chemicals

Product category	Environmental impacts Share of total impacts ²⁵³								Market data (m ²)	Eco-labels	
	GWP	Eutr.	AD	HT	EcoT	OD	PO	Acid			
Hard Floor Coverings											EU Eco-label Blue Angel Nordic Swan
Ceramic tiles										1.6 Bln	
Soft Floor Coverings											
Carpets	0.3	0.7	0.3	0.4	0.8	0.6	0.6	0.3	1.1 Bln		
Wood floorings									0.14 Bln		
PVC coverings									0.33 Bln		
Linoleum coverings									0.04 Bln		
Laminates ²⁵⁴									0.025 Bln		

Source: EIPRO and PRODCOM

Industrial products (e.g. products used in industrial processes e.g. chemicals, non-energy using machinery)

Chemical products

Under the category of industrial chemicals we examined industrial cleaners, lubricants, industrial paints and varnishes and fertilizers. According to the EIPRO study none of the following categories represents a sizeable part in the total environmental impacts, even when both consumer and industrial uses are considered. Based on this, none of the products can be considered as high priority.

Still, some of them appear as more adequate for a possible extension of the Ecodesign than others. In the case of **cleaners** the case study suggests that eco-design requirements are possible to set in relation both to amount of surfactants used, the efficacy and efficiency (“per unit” impact and in relation to energy, water or material use). It should also be rather easy to test and enforce. On the other hand, important aspects related to the presence of substances with harmful profile are already under the scope of EU legislation such as REACH. At the same time, industrial users most often have greater capacity to handle substances in order to reduce some of the possible impacts to the environment which possibly means a reduced improvement potential as a result of the legislation. Overall, we believe that industrial cleaners are rather low priority for the Ecodesign.

In relation to **industrial paints and varnishes** we expect that similar considerations, as in the case of cleaners, apply. Since there are no data available to differentiate between paints and varnishes used in construction and those used in industry we assumed that their overall share in the total environmental impacts is smaller. At the same time, given the importance for industry of efficient use of paint, minimisation of waste and occupational and health regulation we expect that there is less scope for

²⁵³ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

²⁵⁴ Data referred to the entire EU production of laminates, not only for floor coverings.

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improvement on the basis of Ecodesign requirements. Thus, we consider that industrial paints and varnishes should be considered as having low priority.

In the case of **lubricants**, the data on the market size and environmental impacts indicate that, with the exception of abiotic depletion, this product category has relatively small environmental impact (no more than 0.1% of the total products in the EIPRO study). The information from existing national eco-labels (Blau Angel) indicates an important role of the raw materials extraction phase. The use phase has also important impact on the toxicity to water and soil and there are also issues with their final disposal. The presence of relevant eco-labels suggests that certain Ecodesign requirement could be set in relation to their impacts on soil, water and human health as well as the share of renewable or refined oil used. Minimum performance levels, also included in the Eco-label requirements, could also reduce the total consumption of lubricants. Requirements on the type of packaging and prevention of oil retention can also be considered. However, certain aspects are already within the scope of regulation such as REACH (concerning the production and the use) but also on the end-of life (Directive on hazardous waste). Overall, we consider that while there is certain potential for setting requirements – which should not be particularly difficult to monitor and enforce – the product category should be considered as having medium priority.

Finally, there seems to be limited scope for developing Ecodesign requirements for **fertilisers**. While it is a product sold in significant volumes, they represent relatively small share in the total environmental impacts. Furthermore, most fertilisers are based on the presence of a few key nutrients that are key for their effectiveness. In addition, the main impact of fertilisers (acidification, eutrophication) depends on their use during the production of crops an aspect that can only marginally affected by the fertilisers' design itself and more from the information and guidance provided.

Table 4.31 – Environmental impacts and market size of industrial chemicals

Product category	Environmental impacts – percentage share in total ²⁵⁵								Market size (2007)	Ecolabels
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.		
Lubricants	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.0	3 bln kgs	EU Eco-label Blue Angel Nordic Swan
Industrial detergents/cleaners	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.3 bln kgs	EU Ecolabel Nordic Swan
Paints and varnishes	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	18 bln kgs	EU Eco-label Nordic Swan Blue Angel
Glues, adhesives	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4 bln kgs ²⁵⁶	Nordic Swan
Fertilisers	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.2	24 bln kgs	-

Source: EIPRO and PRODCOM

²⁵⁵ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

²⁵⁶ Industrial and consumer

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Non-energy using machinery

This category of industrial products is rather wide and diverse and it is difficult to come up with general conclusions. The table below present the profile of certain product categories that fall under the non-energy using machinery. For the identification of the product categories we also used the CPA product classification and specifically we examined the definitions for fabricated metal products and general and specific machinery and equipment. The review of these product categories suggests that the main product category is **hand tools** even though it is not always possible to differentiate between tools used for industrial purposes and those used in households. Among machinery, the majority of product groups were already included under the second working plan as energy using or energy related products. The same applies to various agricultural and forestry machinery. A second category includes the various metal articles that, again, can be used both for industrial processes and in households.

The key issue for those products concerns the raw material extraction (plastic or metal), the impacts resulting from production processes and the end of life (waste). According to the EIPRO study, both product categories have a small contribution to most of the key environmental impacts areas examined. On the other hand, according the BIO IS study the applicable legislative framework for hand tools²⁵⁷ does not cover the most crucial aspect – the extraction of raw materials - appropriately. In that respect, Ecodesign requirements for this category of products can be effective if they focus on the selection of raw materials and improvements of the durability and recyclability of those products in order to reduce raw materials consumption and level of waste. Overall, while the setting of Ecodesign requirements seems feasible the specific product category cannot be seen as a high priority given the limited share in relation to most environmental aspects.

Table 4.32 – Environmental impacts and market size of hand tools

Product category	Environmental impacts – percentage share in total ²⁵⁸								Market size (2007)	Ecolabels
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.		
Handtools	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.2 bln kgs	Nordic Swan
Metal products	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	<0.1	127 billion items	-

Source: EIPRO and PRODCOM

Means of transport

The analysis of the environmental impacts related to the means of transport on the basis of EIPRO indicates that passenger cars represent the single greatest contributor to environmental impact variable. The remaining means of transports have a much smaller contribution not exceeding 0.7% of the total. This already constitutes a significant argument against considering some of them (e.g trucks and vans or boats) as high priority products. In addition, rail vehicles are sold in volumes that are much lower than the number of 200,000 units indicated in article 15 of the Ecodesign Directive.

²⁵⁷ BIO IS refers to the Raw materials initiative and directive on packaging and packaging waste (94/62/EC). The IPPC and REACH directives are also relevant for the production stage.

²⁵⁸ GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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At the same time, on the basis of the review conducted by BIO IS²⁵⁹, products like trucks and vans or motorcycles are covered by legislation similar to that of passenger cars. Our assessment in the case of passenger cars is that the existing legislation leaves rather limited scope for covering means of transport under the Ecodesign without the danger of duplication. This appears to apply to the other two categories.

In relation to shipping (speed boats, cruisers, ships), existing legislation cover emissions during production (IPPC), fuel quality (Directive relating to the quality of petrol and diesel fuel and Marine fuel sulphur Directive), efficiency (2011 amendments to MAPROL by the International Maritime Organisation setting an Energy Efficiency Design Index)²⁶⁰ and the handling of waste shipment (Waste Shipment Regulation). However, aspects such as material efficiency or recyclability could be part of Ecodesign requirements for those products. The same, more or less, applies to airplanes where energy efficiency is already within the scope of existing regulation while resources efficiency or recyclability is not covered according to BIO IS. We do not consider that it will be particularly difficult to enforce such requirements although, at least in the case of shipping, it may create disincentives for registering new ships in EU registers. International standards - as was recently done with the introduction of an Energy Efficiency Design Index set by the IMO – may be preferable. Still, there is greater scope for an extension in the case of inflatable vessels that operate local and are sold in substantial volumes (over 200,000 units). There is less scope for sailing boats or motor yachts that are sold in less than 20,000 units annually.²⁶¹

Table 4.33 – Environmental impacts and market size of main means of transport

	Environmental impacts – percentage share in total ²⁶²								Market volume (thousand items)
	GWP	Eutr	AD	HT	EcoT	OD	PO	Acid.	
Passenger cars / car transportation	15.4	4.9	16.5	21.2	11.5	10.7	17.1	10.8	13,000
Trucks/vans / truck services	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.2	1,786
Light vehicles									1,500
Trucks									252
Buses									34
Motorcycles, bicycles	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.1	21,000
Motorcycles									2,000
Bicycles									19,000
Boats, ships, vessels, tankers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	11,000
Aircraft/air transport	0.4	0.1	0.7	0.3	0.3	0.3	0.3	0.3	434
Trains / rail transport	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.3	19

Source: EIPRO and PRODCOM

²⁵⁹ BIO IS (2010), Technical support to identify product categories with significant environmental impact and with potential for improvement by making use of Ecodesign measures- Final Report - April 2010

²⁶⁰ <http://www.imo.org/MediaCentre/HotTopics/GHG/Pages/default.aspx>

²⁶¹ PRODCOM data for 2010

²⁶² GWP: Greenhouse Warming Potential, Eutr: Eutrophication, AD: Abiotic Depletion, HT: Human Toxicity, EcoT: Ecotoxicity, OD: Ozone Depletion Potential, PO: Photochemical Oxidation, Acid: Acidification

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4.6 Conclusions on the appropriateness of extending the Directive

The analysis presented in the sections above provides the basis for addressing the two main questions of the study:

- Whether an extension of the Ecodesign Directive to cover non-energy related products and means of transport is considered appropriate within the context of the SCP/SIP policy and under which circumstances
- Which categories of non-energy related products and means of transport should be given priority to cover under the Ecodesign Directive in the case that the Directive is extended

In relation to the first question, it is clear that on a theoretical basis the use of Ecodesign requirements can bring substantial improvements to an important number of non-energy related products. An Ecodesign based approach that considers the life cycle aspects of the different products provides a useful tool to identify the relevant environmental impacts of products and, in many cases, utilise the key role that manufacturers or retailers can have a positive role in the greening of supply chains and enhancing sustainable production and consumption. Different products have different environmental impacts and the role of product design can vary but in all cases there is, in theory, potential for improvements if the relevant life cycle stages are concerned.

However, the appropriateness of an extension should be considered within the context of the existing policy and regulatory framework but also in relation to the potential impact to the existing Ecodesign Directive for ErPs.

The analysis of the existing environmental policy framework suggests that there are a number of product categories for which the extension and the development of IMs under the Ecodesign will, most probably, not bring added value and for which other tools appear more appropriate. In the case of means of transport – and particularly passenger cars – the existing regulatory framework already provides the basis for improving the environmental performance across the life cycle and, despite the significant environmental impact, one could argue that ensuring that existing legislation is properly and effectively applied represents greater value for money. For some other product categories (e.g. certain categories of chemicals) the existing regulatory framework could be considered as rather incomplete and Ecodesign requirements, if effectively designed and implemented, can bring sizeable improvements.

A second important consideration is the possible impact of an extension to the existing ErPs. The case studies suggest that a new or updated methodology would have to be developed to replace or improve the existing MEErP and support the development of generic and specific requirements. This is indeed possible – the same way that the MEEuP has been recently revised – and cannot be seen as an important obstacle. What could possibly be a greater problem in the case of an extension is the potential negative effect on the effectiveness and efficiency of the ErP Directive. While one would logically expect that there will be additional and appropriate financial and human resources to cover the additional work involved, there are also coordination issues. The extension to non-energy related product will bring along an even greater number of stakeholders, an extended number of Commission services (e.g. DG Agriculture and DG Maritime affairs and fisheries for food products) as well as additional departments and agencies in some Member States. It is conceivable that an opening up of the Ecodesign Directive will deviate effort and resources for a substantial time.

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The above points do not necessarily mean that an extension of the Ecodesign is not feasible, particularly since the extension does not by itself lead to the development of Implementing Measures for specific products. They do suggest however that any extension will require planning and the allocation of substantial human and financial resources in a period that the Commission budget is under pressure. Furthermore, in the case of an extension to non-ErPs, the final list of products covered by Ecodesign may eventually exceed the total of 50 or 60. The transfer of the implementation to an existing or new separate body – e.g. an executive agency already discussed in section 3.4 appears even more necessary under such circumstances.

Substantial resources will also have to be dedicated to the development of the methodologies and standards for analysing in a consistent form the life cycle impacts of different products to be used by industry for assessing conformity. Work is already in progress in certain areas although there are diverging views as to how close we are a consistent approach that can be used for the development of mandatory requirements. It has been suggested by some stakeholders that an extension of the Ecodesign Directive will create a momentum towards finalising this key aspect. The evaluation team appreciates the underlying logic but it is not possible to predict whether this will be the case.

Similarly, the existing tools and mechanisms – such as chain of custody or certification schemes - do not seem to provide efficient solutions avoiding excessive compliance costs for industry and for authorities. Thus, for some of the most important categories of products – in terms of environmental impacts – such as food products or textiles, the monitoring and enforcement of the relevant Ecodesign requirements related to the initial stages of the life cycle seem quite problematic, at least in their current form and level of use. This does not mean that more simplified and less complex approaches cannot be found.

In relation to this point, the analysis of the case studies has also indicated that, in contrast to the current practice for EuPs, the use of generic requirements for the development of ecological profile, mainly on the basis of secondary data, may be effective and more feasible for some non-ErPs. There is limited experience so far in that respect but the future revisions of existing Implementing Measures may help in this direction. In the current provisions of the Directive (article 15) it is not clear whether generic requirements can stand on their own. This is a point that will have to be clarified.

Another important conclusion is that Voluntary Agreements can play an important role in certain categories of non-ErPs products. As shown in the case studies, the detergents industry is already moving in a direction that could easily be brought under the Ecodesign framework. There are also other sectors, in food for instance, where the market and supply chain structure would, under a minimum level of requirements, make Voluntary Agreements easier to implement than a regulation, but equally effective. Given the implementation difficulties that are expected in relation to the enforcement of requirements related to the initial stages of the life cycle, voluntary agreements can provide more feasible alternatives in certain categories of products.

Priority list of products

On the basis of the analysis conducted in previous section (4.5), we developed an initial list of non-ErPs and mean of transport that should be considered as priority in the possible case of an extension. Products are characterised as of low, medium-low, medium, medium-high and high priority on the basis of the extent that they fulfil the criteria related to article 15. We classified as high priority those few products that we consider, on the basis of the information available, that they rather clearly fulfil all or most of the criteria and for which there is no aspect that makes the application of Ecodesign inappropriate. As medium we identified those products that have substantial environmental impacts and for which there are expected environmental improvements but for which there are possible difficulties in terms of developing or

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enforcing Ecodesign requirements, at least at this stage. Finally, we classified as low priority those products that do not seem to fulfil most, if not all, of Article 15 criteria or for which there are other reasons to conclude that Ecodesign requirements would not be appropriate. For those products that we do not consider as priority we also indicate what we consider as the main problematic or limiting aspect at this stage.

We conclude that there are very few products that could be seen as having clear priority and for which we consider that an extension could not be problematic. One such category is household cleaners and hand dish wash detergents. The other category that we consider that has significant potential is furniture products. While there is variability among the different subcategories, they are products with sizeable environmental impact, substantial potential for improvement – indicated also from the presence of Eco-labels – and for which the implementation of certain Ecodesign requirements focusing on the type of material use, durability and recyclability can be applied and rather easily enforced. Furthermore, generic requirements focusing on the development of the ecological profile on the basis of simplified LCA appear possible. Mattresses are a third category which we consider as having high potential even though it has a rather small share in total environmental impacts. Finally, toys are a category that fulfils some of the key criteria but we are currently missing information on the overall environmental impact to assess whether they could be considered as high priority.

This list represents our initial attempt to bring together the information on the different criteria which are sometimes either conflicting or can be seen as having different weight on the final assessment of priority in the case of a possible extension. It is subject to revision, particularly on the basis of the comments provided by stakeholders and the Commission services.

Table 4.34 - Characterisation of all product categories in terms of priority for coverage in the case of extension of the Ecodesign Directive

Product category	Priority for extension	Main consideration
Food and drink products		
Meat products	Medium	Implementation difficulties
Sausages & processed meat	Medium	Implementation difficulties
Dairy products		
<i>Milk</i>	Medium	Implementation difficulties
<i>Cheese</i>	Medium	Implementation difficulties
<i>Yogurt</i>	Low	Implementation difficulties Relatively low env. impact
<i>Ice cream</i>	Medium	Implementation difficulties Relatively low env. impact
Fruits& vegetables	Medium	Implementation difficulties
Table oil &frying fat	Medium	Implementation difficulties
Beverages		
<i>Bottled & canned soft drinks</i>	Medium	Implementation difficulties
<i>Alcoholic drinks</i>	Medium	Implementation difficulties
Bakery	Medium	
Coffee&tea	Medium	Implementation difficulties
Grains&pasta	Medium	Implementation difficulties
Fish&fish products	Medium	Implementation difficulties
Jam & Sweet products	Medium	Implementation difficulties
Confectionary	Medium	Implementation difficulties

Extension of the Directive

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Product category	Priority for extension	Main consideration
Processed foods, cereal, potato chips	Medium	Implementation difficulties
Consumer products		
Clothing and accessories		
Apparel	Medium	Implementation difficulties
Footwear	Medium	Implementation difficulties
Accessories (Fasteners, buttons, needles, pins, women's handbags and purses)	Low	Relatively low env. impact Limited improvement potential
Leather products (Leather goods, leather gloves)	Medium	Relatively low env. impact Implementation difficulties
Other textiles (Carpets and rugs, cordage and twine, curtains and draperies, textile bags)	Medium	Implementation difficulties
Household chemicals		
Detergents and all purpose cleaners	High	
Personal care (soaps, shampoos, hair dyes, oral hygiene products, cosmetic)	Medium	Limited improvement potential
Pharmaceuticals/drugs	Low	Limited improvement potential
Furniture		
Mattresses and bedsprings	Medium - High	
Household and office furniture (tables, seats, bedroom, dining, living room furniture) –	Medium- High	
Houseware		
Durable cutlery, table and kitchenware, glass products and other household goods	Low	Implementation difficulties Limited potential
Other		
Toys	Medium-High	Relatively low env. impact
Housing products		
Chemicals		
paints and varnishes	Medium	Relatively low env. impact
Glues, adhesives and sealants and fillers	Medium	Relatively low env. impact
floor care products	Medium	Relatively low env. impact
Floor coverings²⁶³		
Hard floor covering – ceramic tile	Medium	Implementation difficulties
Wooden floor coverings	Medium	Implementation difficulties
Carpets and rugs	Medium	Implementation difficulties
Plastic & linoleum	Medium	Implementation difficulties
Industrial products		
Industrial chemicals		
Lubricants	Medium	Relatively low env. impact
Industrial detergents/cleaners	Medium - Low	Relatively low env. impact Limited improvement potential

²⁶³ There is no specific category in the EIPRO study. Based on the review of the various sources we can reasonable conclude that the specific category has significant impact particularly in relation to abiotic depletion.

Extension of the Directive

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Product category	Priority for extension	Main consideration
Fertilisers	Low	Limited improvement potential
Paints and varnishes	Medium-Low	Limited improvement potential
Glues, adhesives	Medium-Low	Limited improvement potential
Hand tools	Medium	Relatively low env. impact
Moulds; moulding boxes for metal foundry etc.	Low	Relatively low env. impact
Means of transport		
Passenger cars	Medium - Low	Existing legislation
Trucks/vans	Low	Existing legislation
Motorcycles & bicycles	Low	Existing legislation
<i>Motorcycles</i>	Low	Existing legislation
<i>Bicycles</i>		
Boats,ships, vessels,tankers	Medium	Existing legislation
Airplanes	Medium	Existing legislation
Trains	Low	Limited market size

Conclusion

Concluding, on the key question of the appropriateness of the extension of the Ecodesign Directive, we consider that such a step is probably premature. Our analysis suggests that Ecodesign requirements can be effectively and easily implemented for only a very small number of product categories. For most non-ErPs examined we concluded that there is limited scope for utilising the Ecodesign Directive. This is either because of the limited expected impact or because of the expected difficulties in the development or in the implementation of the relevant requirements. In order for the Directive to serve the SCP/SIP policy objectives it should be possible to cover those product categories and those life cycle aspects associated with substantial environmental impacts. At this stage the methodologies to identify and set the relevant requirements and, even more so, the tools that will allow for an effective and efficient implementation are either missing or at an experimental stage.

Furthermore, we consider that before any possible extension significant additional progress needs to be made in relation to the implementation of the existing Ecodesign Directive in order to cover the ErPs identified in the Directive text and the working plans. Given that only a small share of products has been covered, priority and resources should be dedicated in this direction. We also believe that more experience needs to be acquired concerning the use and effectiveness of the alternative tools and options offered within the context of the Ecodesign, such as the use of the Ecological profile or voluntary agreements.

Having said that, any extension of the Ecodesign Directive does not lead to an immediate development of relevant Implementing Measures or of any tool in relation to specific products. Furthermore, if properly resourced and coordinated, any adverse effect on the implementation of the existing Ecodesign Directive can be minimised. It is also possible that an extension of the Directive at this stage will provide further momentum both in identifying the political priorities and the development of the methodologies, standards that are necessary to make the use of Ecodesign both effective and efficient. However, we should point out that the significant progress made in the various sectors has taken place even in the absence of the Ecodesign Directive. On the balance, and on the basis of this rather preliminary analysis, our assessment is that any extension of the Ecodesign Directive should be postponed until more experience has been

Extension of the Directive

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acquired and only on the basis of a thorough cost-benefit analysis, considering in particular whether other pieces of EU legislation would be more effective in reducing the environmental impacts of non ErPs.

Conclusions & Recommendations

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5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Overall conclusions

The following are the main conclusions of the Report, though again this summary necessarily obscures some important detail to be found in the main text.

There is now a substantial body of experience with the Ecodesign Directive as a policy instrument. Some of its positive characteristics are the relative flexibility of its procedures and the active engagement of stakeholders in shaping developments. These are valuable assets that are promising for the future adaptation of the processes by which the Directive is implemented and as the lessons of recent experience are integrated into new and existing structures.

The main conclusions are:

The Relevance of the Directive

- The Ecodesign Directive remains a highly relevant policy instrument for addressing the challenges identified in the Commission Communication on Sustainable Consumption and Production and the Sustainable Industrial Policy Action Plan. As such it remains highly relevant for the vision of smart, sustainable and inclusive growth that is at the heart of the Europe 2020 Strategy.
- The SCP/SIP objective of better integration of the various policy instruments is still a highly significant issue and needs to retain a high profile as a guiding principle.
- Effective application of this principle requires continuing efforts on the integration of policy and there is scope for closer work with all the relevant pieces of EU legislation, in particular the Energy Label, the Eco-label, Green Public Procurement, the WEEE and RoHS Directives, REACH, EPBD and the Construction Product Regulation.
- The relative focus on energy efficiency issues since 2005 resulted from various factors, notably the product scope of the 2005 Directive (energy using products; policy choices by the European Union on the basis of technical analysis in preparatory studies and available data; there is a legal obligation to avoid duplications, contradictions and overlaps between various pieces of the EU acquis.
- The Ecodesign Directive offers a broad framework for addressing environmental issues relating to products and there are possibilities for promoting non-energy in use improvements in many of the products that have been or are being considered under the current Directive. In a number of instances, issues can and should be addressed through related legislation (principally the WEEE and RoHS Directives) but this requires the close co-ordination between Commission officials that has already been referred to.
- In the case of some Implementing Measures already in force (for example, televisions), there may have been potential non-energy improvements that were not adopted as a result of the product scope, policy choices and the underlying technical analysis.

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- There are a range of products still under consideration, where the analysis of the Review of EuP Preparatory Study Evidence for Defra in the UK identifies possible non-energy in use improvements. In some cases, initial analysis suggests that these would qualify for Ecodesign Implementing Measures against the criteria of Article 15 of the Framework Directive. In others, they would be better addressed through other pieces of EU legislation.
- The collection and management of relevant data, development of certification and auditing schemes and a further development of relevant standards are important steps towards achieving a better definition and resolution of non-energy issues that would make the specification of requirements more practicable for those responsible for placing the product on the market and assist with the enforcement of the legislation.
- The lack of metrics and data is a major constraint and may have inhibited the making of provisions covering other environmental considerations than energy. More broadly, the collection and management of relevant data, development of certification and auditing schemes and a further development of relevant standards are important steps towards achieving a better definition and resolution of non-energy issues that would make the specification of requirements more practicable for those responsible for placing the products on the market and assist with the enforcement of the legislation.
- It is also argued that the metrics will not be developed and the data collected unless there is a mandatory requirement making it necessary to do so.
- There are still issues to resolve in relation to complex products and systems. These are issues of regulatory efficiency. At what level is the intervention most effective, in terms of maximising its intended impact, at the least cost for those regulated, while also avoiding regulatory overlap and redundancy? Concrete cases need further analysis and a regime developed that can address their complexity.

The effects of the Directive

- Implementing Measures have been established for 13 products. 13 products remain in the process
- Implementing Measures for 9 product groups were only brought into force towards the end of 2008 or in 2009, following a phased introduction of measures and a step-by-step strengthening of the minimum requirements.
- Consequently, assessment of the impact of the Implementing Measures is restricted mainly to identifying anticipatory action by industry. The impacts associated with particular products are set out in the main part of the Report.
- Overall consumption of energy since 1998 has remained relatively steady, Within this, the greatest improvements have taken place with heating and electrical appliances (refrigerators, freezers, washing machines, dishwashers and TVs), where most existing Implementing Measures are concentrated. Improvements have been less evident in relation to cooking and water heating, where Implementing Measures have not yet been adopted.
- The Implementing Measures already in force cover only a small part of the overall energy consumption in households. In 2008, electricity for lighting and appliances represented only 14% of the total. In

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comparison, space and heating represented 84% of the total consumption. Consequently, the Directive has considerable remaining potential.

- It has not been possible to analyse any rebound effect.
- The fact that the Implementing Measures may enter into force five years after the start of the preparatory study and that the most demanding Tier 2 requirement may be introduced 4 or 5 years later means that the requirements often ignore recent technological developments and market trends.
- Implementing Measures appear not to have had a negative impact on prices of energy-using products.
- Estimates provided by stakeholders of the costs incurred in complying with the Implementing Measures vary considerably, ranging from major impacts to almost negligible ones. An issue is the extent to which development costs can be attributed to the Directive, when they would have been incurred in responding to market pressures.
- An important factor in minimising the impact of costs to manufacturers is the lead times allowed before the introduction of the most stringent requirements. This means that compliance costs can be assimilated in normal development costs.
- While it is difficult to reach specific conclusions on the impact of the Ecodesign Directive on the competitiveness of European industry, there is no evidence of major deleterious effects. If anything, the Directive encourages innovation and the adoption of new energy efficient technologies that are important for maintaining competitiveness in the long term.
- The Directive has yet to be fully tested in terms of the possible impact on competitiveness from the adoption of measures related to other environmental aspects. This is an area where similar legislation in other countries is largely absent and where the impact – positive or negative – may be more significant.
- The Directive does not set out to promote the development of new technologies and with the time between preparatory studies and the implementation of Tier 2 requirements may fall short of promoting the most efficient existing technologies, an effect which may be reinforced in some cases by the use of the Least Life Cycle criterion. Nonetheless, industry stakeholders suggest a positive role for the Directive in the development of innovation, by providing the necessary framework conditions, a clear timetable and legal certainty.

The efficiency of processes for implementing and enforcing the Directive

- With the development of Implementing Measures, the major concern of industry is that the situation should always be as clear as possible, in order to allow forward planning. Knowing which products are to be covered, what the likely requirements will be and the time frame over which they are likely to apply are major advantages. Delay on the other hand leads to uncertainty.
- The relatively open processes that have been used under the Directive, with broadly-based stakeholder involvement are generally supported by stakeholders and the criteria for identifying target products appear to work flexibly and satisfactorily. The main issues are at a more detailed level.

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- The best time achieved so far for the full development of a Regulation is 2 years, 8 months, while the worst scenario has been 4 years, 8 months. The average time taken, however, is bound to increase as more difficult products are covered.
- There is currently a significant backlog in the system.
- The market transformation from Implementing Measures is only finally apparent a decade after the products were initially targeted.
- The Commission needs extra resources in order to play its critical part in the implementing processes.
- The USA has in the region of 10 times the number of desk officers available in DG ENER and ENTR in the Commission. Even in China, there are about 70 staff and more than 40 product regulations. There is a similar disparity in terms of resources devoted to the necessary studies.
- There have been a series of potential improvements in the current processes and procedures identified, ranging from the need for more extensive initial studies to the possibility of systematising recent practice in guidance documents and standard formats. More explicit analysis of the issues relating to complex products and systems could be undertaken initially in the Working Plan and subsequently in preparatory studies. The principle of regulatory efficiency should be applied in developing proposals.
- The Ecodesign Consultation Forum is generally thought to work well, although there has not been a Call for Expressions of Interest relating to Forum membership since 2006. The current methods for appointing Consultation Forum members are not seen to be transparent by some stakeholders.
- The methodology used to develop proposals for Implementing Measures (MEEuP) is being revised currently, notably to take account of the focus on Energy-related Products, and is subject to consideration in another forum. It remains to be seen if issues raised in the context of the evaluation have been taken on board in this parallel process.
- The particular problem experienced by Norway with the use of a primary energy factor (PEF) of 2.5 for electricity appears to have no prospect of resolution within the current framework.

Market surveillance

Poor market surveillance and enforcement are a significant threat to the credibility and effectiveness of the Directive that needs to be improved. The Examination of enforcement processes led to the following conclusions:

- The perception of most stakeholders that a significant proportion of products (10-20%) on the market do not comply with Ecodesign Regulations appears to be supported by the emerging evidence
- Those responsible for placing products on the market, especially importers, require further assistance to help them to comply
- In many Member States, there is insufficient surveillance conducted and a shortage of testing facilities
- There are a series of practical steps that can be taken, without incurring major expense, to improve the efficiency of the market surveillance of products covered by the Ecodesign Directive

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- Although each Member State is responsible for market surveillance in its own territory, there is a lot of scope for productive co-operation between Member States and this could usefully be supported by the Commission.
- In addition, particularly by publishing the results of their surveillance activities on dedicated websites, Member States can enhance their surveillance activity and start to engage industry and civil society in reinforcing enforcement of the Directive.

Voluntary Agreements

- No Voluntary Agreements has been endorsed so far, through an industry-backed agreement may have had a significant effect in improving energy performance in the case of circulators.
- Moving to full endorsement of a Voluntary Agreement under the Directive is no easy route for industry (nor for the Commission and Member States), but may have advantages in relatively concentrated industries with a diverse product range.

Cost-effectiveness

- Rough estimates have been made of the costs to the Commission and the Member States of their contributions to Ecodesign developments – they amounted to €19-25 million per year, a total of €220-280 million in 2005 values for the whole period 2005-2020.
- It was not possible to make any definite estimates of costs to industry or of the costs to the consumer for the changing of appliances.
- According to a study quoted, if all products in the transitional period and the first Working Plan are covered, the benefits in the form of energy savings from the Directive would reach a total of €127 billion in 2020 or €90 billion if energy prices remained at 2005 levels.
- Overall, the estimated costs are a small fraction of the expected savings from the measures adopted. Consequently, the evaluation team considers, it is undisputable that the Ecodesign policy would be highly cost-effective, if the resources are available to carry through the current programme to completion in a reasonable time frame.
- There are telling arguments in favour of the allocation of responsibility for managing the processes of the implementation of the Directive to an executive agency or an organisation such as the Joint Research Centre. This could lead to an increased operational efficiency, the pooling of knowledge and resources and the basis for promoting a more systematic collection and management of critical data.

Utility and European added value of the Directive

It is still rather premature to judge at this stage whether the Directive is meeting its long terms objectives. However, the following is noted:

- the development of Implementing Measures in the form of EU-wide Regulations has helped to avoid fragmentation of the Internal Market.
- it is the view of the great majority of stakeholders that an EU-wide measure in the form of regulations under the Ecodesign framework is the most appropriate approach.

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Possible extension of the Ecodesign Directive

The evaluation team examined the situation of a range of non-energy related products in order to expose some of the issues that might arise with any extension of the Directive. However, the investigations of particular product groups were not intended to be robust enough to support conclusions or recommendations relating to the individual products. The following general conclusions were drawn:

- There is a theoretical basis for the use of Ecodesign requirements to bring substantial improvements in an important number of non-energy related products with significant environmental impacts.
- The approach employed by the Ecodesign Directive could be a useful tool to identify the relevant environmental impacts of products and, in many cases, mobilise manufacturers or retailers in the key role that they can play in the greening of the supply chains and in enhancing sustainable production and consumption.
- In contrast to the current practice for EuPs, the use of generic requirements for the development of ecological profiles without specific requirements setting minimum target values may be more effective for a number of non-ErPs and should be assessed.
- Voluntary Agreements could also play an important role in certain categories of products and should be considered either within or outside the context of the Ecodesign.
- For many non-ErPs, the implementation and enforcement of Ecodesign requirements would have to rely on declaration or certification schemes, where there is no experience so far in a context of mandatory requirements for placing products on the market. These would make conformity assessment by manufacturers burdensome and the work of market surveillance authorities costly or difficult in practice, and bringing a risk of high non-compliance rate. The availability of data on upstream stages of the life cycle (production/raw materials) would also make the implementation of Ecodesign requirements for non ErPs very challenging, especially in sectors characterised by highly internationalised supply chains. There are, as a result, significant obstacles for the implementation of the Ecodesign at this stage.
- Substantial resources would have to be dedicated to the development of the methodologies and standards for analysing in a consistent form the life cycle impacts of different products to be used by industry for assessing conformity.
- Additional experience is also necessary concerning the use of chain of custody and certification schemes for ensuring compliance with environmental regulations.
- For some other products – such as passenger cars - existing legislation appears to cover most of the relevant issues. The development of Ecodesign requirements will, most probably, bring limited added value.
- Any extension would require a significant amount of additional resources from the Commission and the Member States, to ensure the satisfactory development of methodologies, implementing measures and market surveillance activities. It should also ensure that the necessary resources and coordination is in place to avoid any adverse effects on the implementation of the existing Ecodesign Directive for energy-related products.

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- In the case of an extension to non-ErPs, the final list of products covered may eventually exceed a total of 50 or 60. This would add considerably to the case already made for transferring responsibility for implementation to an existing or a new separate body – e.g. an executive agency.
- The extension of the Ecodesign to non-ErPs can possibly be considered as increasing the available policy options and does not imply an immediate development of Implementing Measures. However, the actual implementation of the Ecodesign to non-ErPs appears challenging with a very small number of products that can be relatively easily covered at this stage. The balance of benefits versus costs is at this stage rather unclear.
- In the case of a possible extension, the products that should be considered to be of higher priority or potential if there is to be an extension, include chemical products like detergents and all-purpose cleaners, furniture and mattresses and, depending on the specific type, toys. These products represent only a small share of the total environmental impact of non-Energy related products.

5.2 5.2 Recommendations

The European Union has chosen to have a sustainable development policy on products that addresses all the major environmental challenges together. Furthermore the EU's sustainable industrial policy aims to implement this vision in an integrated approach, in which a series of policy instruments are brought to bear in a co-ordinated way.

1. In principle, therefore, extension of the Ecodesign Directive to cover non-energy related goods is necessary to make available a very important instrument for sustainable development policy.
2. However, if the extension of the Directive is not to be an empty gesture, it should be ensured that implementation and enforcement of legal requirements is feasible, practicable and cost-effective. In particular, resources must move to something that is more commensurate with the resources that are available in the United States and elsewhere.
3. Guiding the actual development of an Ecodesign programme of legislation, the authorities must reaffirm the principle that industry has to be provided with maximum certainty and clarity. Otherwise use of the Ecodesign policy instrument can actually be counter-productive and inhibit enterprises from undertaking the necessary developments, at least in the short to medium term.
4. Application of this principle requires a series of improvements to clear the backlog of Implementing Measures for energy-using goods and ensure that those for energy-related goods are adopted with the minimum delay. This will not be possible without some additional resources. If these resources cannot be provided ambitions should be set at a more modest level.
5. A series of improvements need to be made in the processes by which Implementing Measures are developed. This should build on the experience that has now been accumulated :
 - More extensive initial studies can prepare the ground better and help focus subsequent debate. This might involve more initial discussions with stakeholders and more reference to current market conditions and current regulatory and market failures
 - The precise scope of the product categories to be investigated and regulated should be identified as clearly as possible and as early as possible in the decision-making process.

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Timeframes should be set for the completion of each Implementing Measure, with deadlines – at least indicative - for each of the major stages.

- Experience should be codified in the form of guidance documents and templates that could help systematise the way that discussion and consultation proceeds throughout the different development stages of an Implementing Measure and avoid the same ground being covered repeatedly
 - A dedicated portal should explain, and provide on-line access to, all the developments taking place under the Ecodesign Directive
6. Special provision should be made for cases involving particularly complex products or systems. This would involve identification of such cases in the Working Plan, and additional provision within preparatory or special studies, in order to design the best regulatory solution, which may be entirely under the Ecodesign Directive or within a different regulatory framework, but possibly including Ecodesign elements.
 7. Further consideration should be given to creating a dedicated institutional framework, such as an executive agency or an extended remit for the JRC, to capture and embody the technical, market and institutional experience of particular Implementing Measures and to monitor market developments in order to support the development of future Measures. The case for this development becomes even stronger, if an extension of the coverage of the Directive is to be proposed.
 8. In order to address wider environmental issues than energy, both under the current legislation and in any extension, it is imperative that better metrics are developed.
 9. The collection of data was a function identified by SCP/SIP as critical to the overall strategy, but European data requirements are relatively relaxed and there is no central driver of developments in this area. Data requirements should be an enhanced feature of preparatory studies and Implementing Measures and responsibility for developing the data foundation for policy in this area and for monitoring market developments could be one of the functions of the suggested dedicated institution.
 10. Effective enforcement is essential for the credibility of the whole system and to avoid undermining the efforts of enterprises committed to the spirit of the legislation. Surveillance authorities need to be more transparent across the range of their activities.
 - It is necessary to increase the number of accredited laboratories
 - The determination of allowed tolerances ought to be based on normal statistical methods rather than arbitrary percentages
 - Effective surveillance will undoubtedly mean extra resources, but a lot can be done, even within existing resources
 - Surveillance authorities should publish the results of their activities on a dedicated websites for Ecodesign and related activities (such as the Energy label)
 - In order to have a better basis for conducting surveillance tests, Member States could require those placing products covered by Ecodesign Regulations on their national markets to register, using simple on-line systems already employed for other products. A standardised form used by all

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Member States would make this process even simpler. The Commission should consider how this procedure could be supported at an EU level and whether registration could be done centrally. Surveillance can include examination of documentation as a complementary measure to testing

- Engaging industry, civil society and the public in identifying products that do not comply with the Regulations can assist in reaching higher levels of compliance
 - Cost-effective co-operation between Member States and the sharing of investigation results (co-ordinated by the ADCO group) could usefully be increased both in scope and in the numbers of Member States participating. This activity would be more productive if the Commission were to play a greater supporting role.
11. A review and comparison of penalties imposed by Member States should be undertaken and kept up to date.
 12. Our preliminary analysis does not support a decision for the extension of the Directive at this point. However, any decision by policy makers should be based on a thorough cost-benefit analysis, considering in particular whether other pieces of EU legislation would be more effective in reducing the environmental impacts of non ErPs.
 13. In the meantime, the existing work by the Commission services in the direction of the development of broadly accepted and rather practical methodology for the identification and measurement of the environmental impact of products should be supported and possibly extended. The lessons learned from other relevant initiatives at national level should also be utilised.
 14. Industry-wide voluntary initiatives targeting the development of the ecological profile of non-ErPs and the adoption of eco-design practices should be further promoted. They have the potential of bringing sizeable environmental improvements in a more flexible way for industry and, most probably, with fewer costs. At the same time, they can assist in streamlining and harmonising existing practices, increasing the use and reducing the cost of using chain of custody or certification schemes.

Next steps

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6 NEXT STEPS

The following key actions will take place after the submission of the Draft Final Report:

- Finalisation of the Draft Final Report on the basis of comments from the Commission services
- Publication of the report
- Organisation of the third stakeholder meeting (planned to take place during the second half of January 2012)
- Finalisation of the report on the basis of the comments from stakeholders
- Development and submission of Final Report by 20 February 2012

Finalise of Draft Final Report

On the basis of comments from the Commission services, CSES will make any necessary changes and additions to the report. The report will then be made available to stakeholders through the project website not later than December 16th 2011.

Organisation of the third stakeholder meeting

The stakeholder meeting is expected to take place in Brussels on January 18 2012. The Commission services are expected to make the arrangements concerning the appropriate venue and date and inform CSES. On the basis of this information CSES will prepare a draft agenda of the meeting to be communicated to stakeholders by December 16th 2011. CSES will maintain close cooperation with the Commission services for the identification of the stakeholders and the organisation of the meeting.

Third stakeholder meeting

During the third stakeholder meeting CSES and its partners will present the findings of the study, the conclusions derived and make recommendations. The conclusions and recommendations will be discussed during the meeting in order to receive feedback from stakeholders.

Draft Final Report

On the basis of the feedback received during the third stakeholder meeting CSES will work towards the final report of the study. The final report will be submitted by February 20th 2012.