Expanding the Scope of the EuP Directive

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Preface

This report constitutes the documentation of the project “Expanding the Scope of the EuP Directive”, financed by the Nordic Council of Environmental Ministers. The project was initiated by the SCP working group, chaired by Inger Grethe England, Climate and Pollution Agency, Norway. The group has for several years worked with issues related to ecodesign and resource efficiency. The project period was from 1.6 2010 to 31.12 2010.

The aim of the project was to set focus on the recently recast Ecodesign Directive of the European Union (Directive 2009/125/EC), its limitations, its potentials and its future. Even though the Directive has the ambition to regulate the entire life cycle and all environmental aspects of the products in scope, implementing measures has mainly addressed the use phase and energy efficiency.

As part of the project a workshop was organised on Ecodesign and Resource Efficiency. The intention was to bring leading experts and other interested stakeholders together to discuss these issues. The aim of the workshop is to provide ideas for improvement that the Nordic countries can put forward at the next revision of the ErP Directive in 2012.

The project was organised by researchers from Aalborg University, Denmark, and the International Institute for Industrial Environmental Economics (IIIEE), Lund University, Sweden.

The organisers would like to thank all who participated in the workshop for their contributions to a fruitful discussion. A special thanks to the chair, all speakers and session chairs, who gave their insights and thoughts on the topic.

Aalborg January 2011

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Summary

This report is the documentation from the project “Expanding the Scope of the EuP Directive”, financed by the Nordic Council of Ministers for the Environment.

The project was kick-started by the adoption of the recast of the Energy-using Product (EuP) Directive (Directive 2005/32/EC) in October 2009. The recast means that Energy-related Products (ErP) now are included in the scope of the Directive (Directive 2009/125/EC). With this expansion of the scope to energy related products, focus is put on interesting issues, which have already been discussed in relation to Sustainable Consumption and Production in the EU. This concern:

- How can a common information platform be ensured, which can feed the setting of requirements for both energy- and eco-labelling, green procurement guidelines and performance requirements in for instance the ErP Directive?
- How is an optimal synergy between the minimum performance requirements in the ErP Directive, the energy labelling of all products and incentives for front-runner companies through eco-labels?

The implementing measure issued so far based on the EuP Directive has according to previous studies led to a rather unilateral focus on energy consumption in the use phase of the products. Besides, the relation and potential synergy between already existing ecolabels, energy labels, guidelines for green procurement, and other Integrated Product Policy (IPP) instruments has nearly not been investigated and utilised.

The aim of this project was to organise a Workshop on Ecodesign and Resource Efficiency. The intention was to bring leading experts and other interested stakeholders together to discuss these issues. The Nordic perspective of the conference should be a common understanding of (1) how the ErP Directive and especially the Implementing measures could be changed to include more environmental requirements than just energy efficiency, (2) how the different ecodesign directives can supplement each other, (3) how a common information platform for IPP instruments can be realised and (4) how a synergy between minimum performance standards and energy- and ecolabels can be established.

The primary findings of the workshop are:

- Ecodesign is an efficient and strong instrument to achieve energy efficiency and potentially also environmental improvements

- The ErP Directive has the possibility to work efficiently together with other product policy instruments such as ecolabels, energy labels, the ROHS and WEEE Directives and the REACH Regulation. It is necessary to keep these potentials in mind and expand the synergies
- Broader use of the ErP Directive can give competitive advantages to the European businesses. Stringent requirements can stimulate an expansion of green competencies and help enterprises to become market leaders. The ErP Directive is an important piece in the puzzle that is required to make EU a resource efficient and green economy
- The ErP Directive and the way it is applied inhibit its potential as a life cycle tool that can stimulate ecodesign practices and life cycle thinking among corporations. The scope of the Implementing measures, the methodology applied in setting up requirements, and the linkage between the Directive and other EU legislation should be considered in order to improve the potential of the Directive to fulfil its original purpose
- One recommendation for the revision of the Directive in 2012 is that an integrated product policy has to generate an improved connection and synergy between the single policy instruments. This was underlined in three of the four sessions. Further, a common vision and coherent strategy across the different policy instruments is necessary in order to achieve the goals and ensure a transparent process for all involved stakeholders
- One further recommendation was to extend the ErP directive to include both material efficiency and more product groups. Along the same line the importance of including all life cycle phases in the requirements was underlined. However, this criticism is more due to the focus of the Implementing measures than to the scope of the ErP Directive. A possible way forward could be a step-wise approach, where the environmental requirements are set up as part of the dynamic tightening of demands

Introduction

This report constitutes the reporting from the project “Expanding the Scope of the EuP Directive”, financed by the Nordic Council of Ministers. The project period ran from 1.6.2010 to 31.12.2010.

Project responsible has been researchers from Department of Development and Planning, Aalborg University, Denmark and International Institute for Industrial Environmental Economics (IIIEE), Lund University, Sweden.

The purpose of the project is to organise a workshop where leading experts and other interested stakeholders will discuss the following topics:

- How can the focus of the ErP Directive and Implementing measures be expanded to include other environmental requirements than solely minimum energy requirements?
- How can the eco-design directives (WEEE, ROHS and ErP) better supplement each other?
- How can a common information and knowledge platform for the IPP instruments be realised?
- How can normative minimum requirements be set up in order to ensure synergy to energy and eco labels, and how is a gradual tightening of the requirements ensured in order to promote eco innovation?

The aim of the workshop was to increase the knowledge base, and develop ideas for how to improve the Directive and the related EU policies and laws. Hopefully, the insights gained will benefit decision makers in the Nordic countries, and serve as useful input to the recast of the ErP Directive in 2012.

Background of the Project

On the 21st of October 2009 the European Parliament and the Council of the European Union adopted a recast of the EuP Directive¹ (Directive 2005/32/EC), which means that energy related products are included in the scope of the Directive (ErP Directive²). Energy related products are for instance windows, insulation materials and washing powder, which

¹ Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products and amending Council Directive 92/42/EEC and Directives 96/57/EC and 2000/55/EC of the European Parliament and of the Council.

² Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.

influence the energy consumption, but do not use energy directly. At first, the adoption of the recast implies that the scope is expanded with 30 product groups.

The ErP Directive is a framework directive setting the standard for how ecodesign requirements can be set for the chosen product groups. The requirements are called Implementing Measures and are regulations with immediate legal effect. The requirements can both be of generic and specific character and aim at improving the environmental and energy performance of the products.

With the expansion of the scope to energy related products, focus is put on interesting areas, which have already been discussed in relation to Sustainable Consumption and Production in the EU. This concern:

- How can a common information platform be ensured, which can feed the setting of requirements for both energy and eco-labelling, green procurement guidelines and performance requirements in for instance the ErP Directive?
- How is an optimal synergy between the minimum performance requirements in the ErP Directive and the incentives for companies via energy-labels and eco-labels?

So far, the specific requirements in the implementing measure for the first product groups has reduced the life cycle thinking to a focus on only energy efficiency. In other words, the previous work and experience from setting up criteria for eco-labelling and from guidelines for green public procurement has not been taken into account. Moreover, voluntary agreements within the framework of the ErP Directive are gaining ground, in part to anticipate the requirements of the directive and partly as a supplement to the requirements set forth by the Implementing Measures.

Lastly, the connection between the ErP Directive and other ecodesign directives that is the WEEE and the RoHS Directive should be mentioned. Due to concerns related to “double regulation” the potential for synergy between the regulations is not explored and utilised. For instance could the requirements of the ErP Directive to a much higher degree refer to the list of Substances of Very High Concern in the REACH regulation, just as requirements on materials, recycling and durability could improve the recyclability of products and turn waste into a resource.

The point of departure for the workshop is a recent study by Aalborg University on the implementation of the Implementing Measures for televisions. The findings of this study seems to some extent general to several product groups and are among others:

- The Implementing Measures will expel the most energy inefficient products from the European market

- Regulation is connected to innovation and with a dynamic approach (gradually stricter requirements)
- Minimum energy performance standards as in ErP requires a coordinated interplay with other policy instruments
- Narrow focus on energy efficiency instead of environmental improvements
- Focus on energy efficiency in the use phase instead of the entire product life cycle
- The ErP process takes too long time – compared to the dynamics of new technologies and to changes in market trends
- Emergent technologies have not been taken into account
- The Implementing Measures could be more ambitious especially regarding on-mode power consumption

1. Workshop on Ecodesign and Resource Efficiency

The Workshop on Ecodesign and Resource Efficiency was held in Eigtveds Pakhus, Copenhagen on November 26th 2010. The programme of the conference is listed below. Presentations can be downloaded from the workshop homepage: www.resourceefficiency.aau.dk.

Programme

09.00	Registration and coffee			
09.30	Welcome by Claus Torp, Deputy Director Danish EPA, Chairman for the Nordic Committee of Senior Officials for Environmental Affairs			
09.45	Member of the European Parliament, Britta Thomsen			
10.05	Segment Director, Mads Sckerl, Grundfos Grundfos has lobbied actively to tighten the requirements for electric motors in the EuP Directive, leading to energy savings equal to 5% of all electricity in EU. What was the motivation and results?			
10.25	Professor Arne Remmen, Aalborg University The Ecodesign Directive – strengths and limitations			
10.45	Coffee break			
11.00	Viljo Lehes, DG Energy Status – how has the implementation of the Ecodesign Directive and the implementing measures progressed? How has the Directive been received and how does the future of the Directive look?			
11.20	Pavel Misiga, DG Environment What is the vision of DG Environment for product regulation in the EU in 2015? What is the way forward for product regulation?			
11.40	EU Policy Officer for Products and Waste Stephane Arditi, European Environmental Bureau Grasping the potentials of Ecodesign Directive – How NGO's can contribute?			
12.00	Panel debate			
12.30	Lunch			
13.30	The four session:			
	1. Resource Efficiency	2. Integrated Product Policy Instruments	3. Standardisation and innovation	4. Connection to other product regulations (RoHS, REACH. Etc.)
	Lars Mortensen, European Environmental Agency	Naoko Tojo, Lund University	Kim Christiansen, Danish Standards	Bjørn Bauer, PlanMiljø
14.30	Reporting from the four sessions: Strengths, Limitations and Improvements			
14.45	Coffee break			
15.00	Shailendra Mudgal and Adrian Tan, bio Intelligence Service Experiences with the preparatory studies of the Ecodesign Directive			
15.30	Viktor Sundberg, Vice President of Environmental and European Affairs for Electrolux in Brussels A business perspective of the eco design directive			
16.00	Michael Lettenmeier, Wuppertal Institute for Climate, Environment and Energy Resource efficiency and the eco–design directive			

16.30	Claus Torp, Deputy Director Danish EPA, Chairman for the Nordic Committee of Senior Officials for Environmental Affairs Conclusions and wrap-up discussion
16.45	End of Conference – Carl Dalhammar and Arne Remmen

The workshop was initiated by three policy briefs on the topics of the four sessions. The first policy brief, *Policy Brief 1 – Resource Efficiency and the Ecodesign Directive*, covered the topic of Session 1. The second policy brief, *Policy Brief 2 – Integrated Product Policy Instruments*, covered the topics of Session 2 and 4, whereas the third policy brief, *Policy Brief 3 – Standardisation and Innovation*, covered the topic of Session 3. All policy briefs are attached in Appendices 1, 2 and 3.

2. Main Points of the Speakers

In this chapter some of the main points of the speakers of the workshop are presented. The intention of the organisers was to have all relevant stakeholders present, wherefore policy makers from the EU, Industry, NGOs and researchers were invited to give a presentation. In the following the main points of the presentations are summarised.

2.1 Viewpoints from Policy Makers

To represent the policy makers Villo Lelkes from DG Energy and Pavel Misiga from DG Environment were invited. Villo Lelkes from DG Energy, who are the authority behind the ErP Directive, emphasised the interplay between main policy tools related to energy efficiency. The ErP Directive pushes the market by taking out the least performing products, whereas the Energy Labelling Directive pulls the market by promoting the best performing products. Both are complemented by public procurement and other incentives set mainly at Member State level. Villo Lelkes presented her insights on the future of the ErP Directive, where she took point of departure in the Energy 2020 strategy by the European Commission. These are:

- 1) widening the ecodesign requirements for energy and resource intensive products complemented by system level requirements where relevant
- 2) exploring the full potential effect of voluntary agreements with energy and resource intensive industry branches and
- 3) more intensive energy labelling for more comprehensive comparison between products

Pavel Misiga from DG Environment presented his vision for European environmental product policy. He highlights the EU 2020 Resource efficiency flagship initiative, where the important objective in this context is: decoupling economic growth from resource use and associated environmental impacts. He also highlighted how the different policy instruments created a market transformation by setting minimum requirements (ErP) and by benchmarking of environmental excellence (different labelling schemes). Pavel Misiga presented three policy options to achieve this:

- 1) business as usual
- 2) integration of existing product instruments in ecodesign and
- 3) a new product policy framework

The third option was discussed more in detail, where Pavel Misiga asked the question if new principles are needed and if we are to take a comprehensive and more mandatory policy mix to the next level.

Besides DG Energy and DG Environment, Shailendra Mudgal and Adrian Tan from BioIntelligence gave a presentation as a consultant firm deeply involved in the Ecodesign preparatory studies made so far. They highlighted the future challenges as: Multi-tiers requirements to stimulate continuous innovation and complementing with other policy instruments. The extension to Energy-related Products might allow wider requirements related to recycling, waste prevention, resource depletion and rare materials.

2.2 Viewpoints from Industry

Two industries gave their views on the ErP Directive and its achievements so far. Mads Sckerl from Grundfos presented Grundfos' case on Electrical Motors. Grundfos have been very successful in influencing the requirement setting for electrical motors. Mads Sckerl's main points were that many still believe that energy efficiency measures come with a high cost, when reality is that high efficiency pumps usually have a payback period of less than two years. Technologies do already exist that can enable huge savings now. The use of Variable Speed drives is emphasised as a solution that could be utilised much more. At present the use less than 10%, but potentially the use could be 50–70%. Political leadership is highlighted as important for improvements, and the ecodesign directives are acknowledged as a good beginning, but more is needed – especially to focus on resource efficiency and on extended products and systems.

Viktor Sundberg from Electrolux gave the second presentation by industry. He emphasised that all the legal tools, these are minimum requirements (in RoHS and ErP), performance declarations (in energy labels), information and registration of chemicals (REACH) and producer responsibility, are needed, and that it is not a matter of “either – or”. But it is important that they are aligned and especially the enforcement is very important.

2.3 Viewpoints from an NGO

Stephane Arditi from European Environmental Bureau was invited from the NGO side. He highlighted three main challenges in grasping the full potential of ecodesign, moving towards resource efficiency and going beyond just energy in the use phase:

- 1) implementation. Take decisions, Set long term ambition and visibility; Communication and monitoring
- 2) improvement of the decision process, where swift decisions should be enabled, stakeholder consensus must be build and member state positions must be aligned
- 3) moving towards resource efficiency. Set up political conditions, identify smart criteria and integrate new instruments in regulation

2.4 Viewpoints from Researchers

The presentation of Rikke Dorothea Andersen and Arne Remmen from Aalborg University highlighted the main strengths as the ErP Directive is an important instrument to expel the least energy efficient products from the European market, and that it can create an incentive for product innovations in the enterprises due to gradually stricter requirements. However, the main limitation is a too narrow focus on just energy efficiency in the use phase instead of environmental improvements in the entire product life cycle. Besides, other limitations were pointed out that the process with preparatory studies and setting up requirements take too long, and in some case means that new technologies and market trends have outdated the requirements as in the case of televisions.

Michael Lettenmeier presented the extensive research done at the Wuppertal Institute related to resource efficiency of products and technologies. The overall conclusion was that resource efficiency will provide added value to the ErP directive, and in spite of some challenges related to data basis, etc. then this are no principle obstacles.

3. Primary Findings of the Workshop

In this chapter the primary findings of the workshop are presented. The aim of each of the four sessions was within the topic of the theme to find:

- The three most important limitations of the ErP Directive (within the theme of the session)
- The three most important recommendations for the revision of the ErP Directive in 2012

The session chairs were asked to write down the findings of their session and present it to the audience in plenary. In the following the main findings of the four sessions are presented.

3.1 Findings of Session 1: Resource Efficiency

The most important limitations of the ErP Directive were found to be:

- Lack of focus on the production process; narrow product scope; not including system innovation, business innovation; too narrow with regards to material resources
- Lifestyle is not included (rebound effect); not affecting lifestyle and consumption patterns; human behaviour
- Lack of dynamics; lack of holistic approach (dynamics)
- Implementation; no limitations – just lack of resources, Slow process; Clear legal design for manufactures
- Only average EU base cases considered in methodology
- Hazardous substances not included; lack of data and methodology
- Lack of political will

The most important recommendations for the revision of the ErP Directive in 2012 were found to be:

- Synergies between policies: – ecodesign directive and other directives
- Picking up the low-hanging fruits: – taking decisions when the possibility is there
- Dynamics: – keep the process going; build on existing knowledge; make knowledge available (develop knowledge base)

- Combination of policy instruments: – link between requirements; giving choice to companies
- Extending scope: – including materials; vehicles; more products (identification of the most problematic); material efficiency; durability; info on hazardous substances; long term targets

3.2 Findings of Session 2: Integrated Product Policy Instruments

The three most important recommendations for the revision of the ErP Directive in 2012 were found to be:

- Combining existing instruments and ensure synergies between instruments
- Data/open source of Life Cycle Assessment (LCA) data, e.g. the building sector
- Decision making process/improve enforcement/find the hotspots, be pragmatic

3.3 Findings of Session 3: Standardisation and Innovation

The three most important limitations of the ErP Directive were found to be:

- System definition in the LCA is crucial to the results but often neither system boundary nor functional unit are well defined
- Standardisation bodies and procedures should be used more in the development of ecodesign regulation (multi-stakeholder, consensus building, facilitation)
- Data used for the LCA applied in ErP studies are old and of low quality – easy access is not a quality characteristic in LCA per se

The three most important recommendations for the revision of the ErP Directive in 2012 were found to be:

- Apply state-of-the-art LCA (databases, LCIA methodology)
- Use standardisation bodies and procedures more
- Use an explicit (sustainability) methodology to assess the impacts of the product group as well as of the regulation

3.4 Findings of Session 4: Connection to other Product Regulation

The three most important recommendations for the revision of the ErP Directive in 2012 were found to be:

- Coherent and effective enforcement
- Consumer information – Coordination with RoHS Directive, labelling/not allowing contents of banned substances
- Strengthening consumer information to actually address the use of the appliances
- Dismantling

3.5 Overall Findings of the Workshop

In summary, the overall findings of the workshop are that ecodesign is an efficient and strong instrument to obtain energy efficiency improvements, and – potentially – environmental improvements in a long-termed perspective. The ErP Directive has to be aligned efficiently with other product policy instruments such as ecolabels, energy labels, the ROHS and WEEE Directives and the REACH Regulation. Such correspondence between the different instruments is a potential driver for eco-innovations and for sustainable consumption and production. The broad scope of the ErP Directive can create competitive advantages to the European businesses, and give them incentives to become frontrunners on the environmental performance of products. The ErP Directive is considered an important instrument in a resource efficient and green economy in the EU.

Although the ErP Directive has a large potential and some positive results have been achieved, there are some limitations to the Directive in its present form.

First of all, the Implementing Measures of the Directive has nearly exclusively focused on energy efficiency and the use phase. Too little attention is given to the production process and material efficiency in general. This could be a result of the methodology applied to calculate and assess the most important environmental impacts of the products. For some product groups the methodology allocates too long life spans to the products, which means that the importance of the use phase will in some cases be overestimated. Session 3 of the workshop underlined that the system definition in LCA is crucial to the results of the LCA, but often neither system boundary nor functional unit are well defined. Furthermore, it was problematized that only average EU base cases are considered in the methodology leading to a too simplified result.

Secondly, it was highlighted that life styles and consumption patterns are not addressed in the legislation, meaning that the rebound effect is not

taken into consideration. It is necessary to some degree to include such considerations in order for environmental improvements not to be vanishing because of a changed consumption pattern. An example is the number of televisions in Denmark. According to the Danish Energy Agency the number of TVs in Danish households has grown from around 2.2 million in 1980 to 5.5 million in 2008 [Danish Energy Agency, 2010]. That equals a growth from approximately one TV per household in 1980 to around one per person in 2008. This means that even though each television is becoming more efficient the total environmental impact is not decreasing. Besides, the Danes are buying bigger and bigger TV screens and they also spend more hours in front of the televisions. It may be difficult to regulate the number of TVs in households, but one way of coping with the changed consumption pattern is to ensure that the energy use does not increase with increased screen sizes, e.g. by an upper-limit for energy consumption of TV as implemented in the EU eco-label.

The participants of one workshop highlighted the lack of political will. Currently, many different policy instruments target the development of greener and more sustainable products. One challenge is that the policy instruments target fragmented parts of “the big picture”, and different legal entities are in charge of the different instruments. Therefore a common vision and coherence between the instruments is missing and lack of political will is experienced.

Further limitations of the Directive in its present form are found to be that the data used for the LCAs applied in the preparatory studies are old and of low quality, hazardous substances are not included, and there is lack of data on these substances. This is part of the reason why the process of setting up requirements is considered quite slow, with the risk that the requirements are out-dated before they enter into force. Also the implementation of the requirements is quite slow and there are limited resources for implementation, most notably a lack of human resources in the Commission. Further points were that the Directive lacks a dynamic and holistic approach and that standardisation bodies and related procedures should be applied to a higher degree when setting up the Implementing measures in order to enhance a multi-stakeholder approach, consensus building and facilitation.

The ErP Directive will be revised in 2012. The recommendations for the revision of workshop are the following.

First of all, an integrated product policy has to strengthen the synergy between the single policy instruments. This was underlined in three of the four sessions. As mentioned, a common vision and coherency across the different policies is necessary in order to achieve the goals and ensure a pragmatic and transparent process for all involved parties.

As a means to improve the process of setting requirements and achieve a faster and more coherent process it was suggested to establish a common Information platform across the different policy instruments.

Regarding LCA data it was suggested to use open source data, as it, for instance, is available in the building sector. Further, for the LCA methodology it was noted that an explicit methodology should be used in the assessment of the products and state-of-the-art LCA should be applied.

The participants of the workshop also touched upon the challenge of coping with the rebound effect. Information to the consumers should be strengthened in order to address the use of the appliances. Also there should be improved coordination between the RoHS, ErP and labelling directive in terms of consumer information.

One further recommendation was to extend the ErP directive to include both material efficiency and more product groups. Along the same line the importance of including all life cycle phases in the assessment was underlined. However, this criticism is more due to the focus of the Implementing measures than to the scope of the ErP Directive. A possible way forward could be a step-wise approach, where the environmental requirements are set up as part of the dynamic tightening of demands.

Coherent and effective enforcement was also emphasized as crucial. Especially companies, which are dependent on suppliers' products for their production, need the guarantee that also the suppliers are checked for compliance.

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4. Policy Brief 1: Resource Efficiency and the Ecodesign Directive

Resource Efficiency and the Energy-related (ErP) Directive – Future Options

Brief prepared for the Workshop “Ecodesign and resource efficiency” in Copenhagen 26 November 2010.

Carl Dalhammar, Chris van Rossem, Arne Remmen, and Rikke Dorothea Andersen

European Union (EU) policy documents are referring to the ErP Directive as a potential instrument for better resource efficiency. This briefing discusses the scope of the Directive, how it is currently applied, and the potential for better addressing resource efficiency, recycling and functional aspects within the framework of the Directive.

4.1 Addressing resource efficiency

4.1.1 Focus on resource efficiency

The current economic downturn was not triggered by a lack of resources, but the next one could very well be, as limits to resources may slow down future economic growth [1]. Due to a number of coinciding circumstances – including fears of resource scarcity and escalating prices – resource security and resource efficiency are currently hot topics on the policy agenda both in the European Union (EU) and internationally.

Resource use entails the extraction and processing of both renewable and non-renewable resources. An increasing use of natural resources puts even more pressure on ecosystems, limiting their long-term resilience. Resource use is highly connected to a number of current ecological threats, most notably deforestation and reduced biodiversity. It is also claimed that climate change and resource overexploitation are two sides of the same coin [2]. Various environmental policies, enacted with the best intentions, may have undesired effects on resource use, the most

well-known example being the discussion on whether policies that promote bio fuels may cause deforestation and reinforce food shortages.

Natural resources may be traded like other commodities, but some important “strategic” resources – such as rare metals used in electronics and batteries – are unlike other commodities in the sense that they are produced in limited quantities, in few places, and therefore buyers have limited options to change the supply base. Both nations and corporations have started to analyze how access to these vital future resources can be secured, as conflicts related to the extraction and distribution of these resources are expected to increase.

4.1.2 *Need for policies*

For these reasons, we need to develop policies that can secure a stable, conflict-free access to resources, including rare metals, for all relevant actors. Policies must also help in providing a fairer global distribution of resources between different regions and countries [3] as poorer countries use a small fraction of current resources. Further, dirty extraction processes are often located in poorer countries, where the waste levels are raising, and this should be addressed through improved international cooperation.

As many developing countries will need to increase their resource use in the short term, developed countries must urgently adopt progressive approaches to decrease resource use. The challenge is enormous, as the demand for raw materials is expected to double or even triple within the next 10–15 years [2]. There is a need for progressive policies, both to limit material use and to close the loops, e.g. urban mining.

Achieving the overall objectives for a more sustainable regime for natural resources will require a large number of measures at various levels (international, regional, national, and local) [2,4]. International agreements, sustainability standards and certification schemes for product chains, and mandated limits to resource consumption are among proposed measures. Better pricing of resources and ecosystem services, where all external effects are taken into account, as well as improved recycling methods and techniques, are all crucial elements of an effective policy mix.

4.1.3 *EU initiatives*

The European Union has initiated several policy initiatives to deal with the issues.³ Important initiatives include the Thematic Strategy on the Sustainable Use of Natural Resources, and the Thematic Strategy on Waste Prevention and Recycling. There are also a number of other strategies and policies

³ In this paper we do not make a specific distinction between policies aimed at “sustainable management of natural resources” and policies aiming at “sustainable material use”. The two concepts are widely overlapping [6].

that entail elements related to resource use, such as the Integrated Product Policy (IPP), and the Environmental Technologies Action Plan (ETAP).

The Raw Materials Initiative was launched in 2008 [5]. It primarily proposes a more targeted use of existing policies and instruments. The Commission is expected to launch a Road-map for improved resource efficiency in mid-2011, which will probably outline concrete measures to be taken. The Belgian presidency has put renewed efforts into developing a strategy for sustainable materials management. In policy paper from July 2010, a number of strategies are proposed [6]. The most relevant ones, with high potential overlaps with measures undertaken under the scope of the ErP Directive, are “selective waste collection and recycling”, “re-use and repair”, “ecodesign”, and “product service systems”.

There are some potential problems with the proposed strategies. First of all, they are as yet quite vague, and in many cases they provide few details on the way forward. This implies that it will take some time before concrete measures are on the table, not to mention decided upon. There are also few suggestions on legally binding measures. Further, the track record regarding enforcement of current rules and strategies on waste collection and recycling are rather poor [7, 8] and little progress has been made in the area of resource efficiency [9].

Absent from current policies are also issues relating to dangerous chemicals in articles and materials. There is a need to better merge natural resource and chemicals policy, for several reasons. Good chemical management practices can decrease the use of resources, and an integrated strategy would reduce the risk of conflicts between different targets. Further, information and knowledge about dangerous chemicals will make it easier to recycle and re-use articles and materials. EU has not managed to develop a strong coherent strategy for addressing chemicals in articles, and the information provided to consumers and other relevant actors – such as professional purchasers in the private and public sectors – are inadequate [10, 11]. Neither REACH nor the ErP Directive has been very effective in addressing chemicals in articles. Current legislative proposals in California could see them move ahead of EU in this respect [12].

4.2 The ErP directive: what is the potential for regulating resource efficiency?

4.2.1 *The ErP Directive and resource efficiency*

Several policy documents make references to the ErP Directive as a key tool for improving resource efficiency. In the Presidency’s Summary of the Informal Environment Council on Sustainable Materials Management, 12th and 13th July 2010, it was stated

“The review of the EU Ecodesign Directive in 2012 must form the basis for a comprehensive European policy on ecological design, covering the resource intensive products, taking into account all relevant environmental criteria across the life-cycle and life-cycle resource requirements (material, water, energy and land). For instance, more attention should be paid to the reusability or recyclability of products.” [13].

The policy paper distributed before the meeting mentioned the ErP directive in several places, e.g.:

“Some ways in which policy could further support ecodesign are: Extend the scope of the EU Ecodesign Directive, include SMM related criteria (resource efficiency, re-usability, etc.), and provide for mandatory supply of product data by companies and sectors in order to monitor progress,’ and ‘Some ways in which policy could further support re-use and repair are: ... Integrate reusability criteria in e.g. the EU Ecodesign Directive.” [6].

4.2.2 *The scope of the ErP Directive*

It is unclear what the recommendations to extend the scope of the ErP Directive really mean. First of all, certain parts of the life cycle of ErP’s are excluded as the definition of “life cycle” provided in the ErP Directive (Article 2) only cover the phases from raw material use to final disposal. Thus, the early phases of the life cycle – e.g. raw materials extraction – are out of the scope of the Directive and implementing measures. This was discussed during the legislative processes [11]. Many actors stressed for a broader definition of life cycle but this was problematic from both a legal and political perspective. Legally, a broader definition of life cycle would open up the potential for regulating so called processing and production methods (PPMs). Whether regulating PPMs is possible or not – due to the potential conflicts with WTO-administered agreements – have been the subject of much discussion. But even if such measures would be deemed legal, they are questionable from a political perspective due the tensions that they would create among governments.

4.2.3 *Regulating the early phases of the product life cycle*

We may conclude that the early phases of the life cycle cannot be regulated directly by implementing measures. Further restrictions are provided through different wordings throughout the ErP Directive [11]. For instance, in Annex I it is stated that ecodesign parameters identified should “relate to product design”. Thus, early phases of the life cycle can only be addressed “indirectly”; requirements on product design may in some cases have implications also for earlier life cycle phases. The choice of materials used is very much linked to the early life cycle phases. Thus, implementing measures that lead to new types of material uses,

or higher recycling levels will be of importance as they will influence early stages of the life cycle in different ways.

We may conclude that a future “broadening the scope of the ErP Directive” will most likely not include a broadening of the definition of “life cycle” given, to include earlier life cycle phases. This means that the ErP Directive must probably be complemented by other (mandatory and/or voluntary) policies that promote environmental improvements in the early part of the life cycle, unless requirements can be designed in such a way that they influence processing and production methods – which is unlikely in most cases. Such policies may include certification schemes or international agreements. It has also been argued that current WTO rules – which treats extraction and production processes as trade neutral – must be reviewed [2].

4.2.4 *Mandate given in the ErP Directive*

Absolute limits to resource use may be necessary in the long run. The ErP Directive can obviously not be the main strategy for achieving this, though it can be one of the tools that will promote resource efficiency and dematerialization.

The next question concerns what mandate the ErP Directive provides for addressing resource use and materials. In principle, the directive provides the necessary scope for regulating a number of parameters that could lead to improved resource efficiency, such as raw material selection and use, materials choices, re-use and recyclability, various information to waste treatment facilities, consumption of resources, information about dangerous substances, and so on.

4.2.5 *Practical application of the ErP Directive*

While the Directive may provide the necessary base to address resource efficiency, implemented measures have so far tended to focus rather narrowly on energy consumption during use [14, 15]. Not only are other environmental aspects (toxicity, material use etc.) often neglected, but also *energy embedded in materials seems to be a neglected issue*. There are several reasons for this state of affairs. Firstly, energy during use is perceived as an important aspect, not least due to its correlation to greenhouse gas (GHG) emissions (though energy embedded in materials seems to get less attention despite their links to GHG emissions). Secondly, the energy performance of appliances are as an easier parameter to deal with than many other environmental aspects (toxicity, recyclability) because there are established practices and standards for measure-

ment, and often numerical values that can be used.⁴ Thirdly, as there are existing regulations covering chemicals (REACH, RoHS Directive) and waste (WEEE Directive), the easy way out is to refer to these regulations rather than to analyze if they cover the important issues for the relevant product group. The fact that the mentioned regulations have had very limited impact on ecodesign practices is seldom noticed. Fourthly, the choice of life span and the scoping seems to influence the results in some cases. For instance, in the case of PCs and TVs, it appears as if many special chemicals (requiring high purity levels which in turn require substantial energy demand) and processes in semiconductor manufacturing are not included in the assessment of the manufacturing phase of the product life cycle [14]. Further, the choice of product life length in the study made when setting implementing measures (6.5 years) was much longer than employed in another study (3 years) [16]. The outcome of different methodological choices clearly affects the importance of the use phase vs. other phases.

Another concern is that default scenarios for recycling rates, which do not take into consideration overall collection rates) of materials have been applied in some cases; it is likely that incorporating actual collection rates in the calculations would show environmental impacts from the end-of-life life cycle phase to be much more important than currently established [14].

Thus, it appears as if there are possibilities to better address resource use and materials within the scope of the ErP Directive, but there are several explanations for why this is not happening.

4.3 The way forward

How could a specific implementing measure that relate to resource use and materials look like? Specific implementing measures (except those relating to energy and water efficiency during use) are often difficult to apply⁵ as they must be designed so they do not hinder new innovative approaches, or have undesired side effects. Some specific measure should however be possible, e.g. banning the use of certain materials in products (in order to facilitate recycling, or protect scarce), or certain stipulations on recycled content. This is of course already possible through other legislation, such as RoHS.

The use of generic requirements is another possibility. In many cases where specific requirements are not possible, generic requirements can be a way forward. Such requirements could – inter alia – force manufac-

⁴ However, there may be a large difference between what is measured for the appliance according to the measurement standards, and how much energy the consumers are really using to run the appliance in reality, as this depends on the behavior and use pattern of the consumer.

⁵ There is however a need to evaluate current practices and the applicability of relevant standards, e.g. EPEAT's IEEE 1680.

turers to: account for raw materials selection⁶ and use, potential for upgradability, relevant design solutions, provide information about chemicals to recyclers and consumers, and so on.

A couple of issues need to be discussed in connection to such requirements. First of all, the legality of such requirements needs to be analyzed. Are they specific enough? Will the manufacturer know exactly what is expected? Will policymakers know what to enforce? If not, little will happen in practice. Secondly, the manufacturer needs guidance in how to perform the analysis, and to be able to provide evidence of compliance. Relevant standards may need to be developed for these purposes. It is also crucial that authorities in the various EU member states perform the same enforcement interpretation in order not to disrupt the Internal Market.

Some relevant standards exist. For instance, IEEE 1680 – EPEAT is a standard (for personal computers and monitors) or soon to be family of standards (other electronics to be considered) that includes a measurement standard for determining whether a product meets design for shredding criteria in EPEAT.⁷ ECMA has launched ECMA-341 “Environmental Design Considerations for ICT & CE Products.” IEC has a number of existing standards of relevance, both relating to guidance and compliance with requirements, e.g.:

- IEC 62430. Environmentally conscious design for electrical and electronic products
- DD IEC/PAS 62545:2008. Environmental information on electrical and electronic equipment (EIEEE)

More IEC standards are under preparation, e.g.:

- IEC 62474. Material declaration for products of and for the electrotechnical industry
- IEC/TS 62650. End of Life information exchange for electrotechnical equipment between manufacturers and recyclers

Not all of the relevant standards can presently be used in the context of the ErP Directive due to European standardization policy [17]. Any standard can become available for use in EU legislation, but it may take some time to make it available as the CEN or CENELEC version. The IEC standards can however be applied. There might be a need to develop additional standards, however. Further, while there are an increasing

⁶ REACH has already forced manufacturers to account for some of the materials used.

⁷ In order to satisfy this requirement manufacturers must eliminate the use of paint or coatings that are not compatible with recycling or reuse. The specific product criterion states that: Plastic parts > 100g on a product shall not contain paints or coatings that are not compatible with recycling or reuse, including metal coatings. EPEAT defines compatible in this context as the following: Paints and coatings on plastic parts are proven to be compatible with recycling processes if they do not significantly impact the physical/mechanical properties of the recycled resin. Significant impact is defined as >25% reduction in notched Izod impact at room temperature as measured using ASTM D256.

number of standards for electronics, the revised ErP Directive will regulate a large number of other product groups, which means that standards must be developed also for these products.

Thus, new standards developed by European Standards Organisations (ESOs) – and/or IEC and other relevant bodies – may be a prerequisite for an extended use of generic requirements relating to natural resources and materials.

There is however also other issue that needs to be considered. The largest potential contribution of the ErP Directive to resource efficiency stem from functional considerations. There are already possibilities to replace traditional ICT equipment with new solutions, e.g. so-called “thin clients” in case of computers. However, both for legal and political reasons, it is probably impossible to demand such solutions be used. More interesting is perhaps discussions in relation to functional integration. This suggests that more efforts should be made to promote compatibility between products – which may include both hardware and software – and provide integrated functions. For instance, DVDs could be integrated in TVs; it must be easy for consumers to use a laptop or a PC as a TV, etc. However, it is not always possible – or desirable – to legislate about such solutions. There may be a need to develop standards and procedures to assist regulators and designers in such matters.⁸

Standards should however primarily be measurement tools or process descriptions. Requirements for e.g. energy efficiency or the phase out of chemicals should primarily be decided by democratically elected bodies, such as Parliaments. When no legal requirements are in place however, industry’s own setting of standards for health and environmental protection should be encouraged.

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5. Policy Brief 2: Integrated Product Policy Instruments

Integrated Product Policy Instruments

Brief prepared for the Workshop “Ecodesign and Resource Efficiency” in Copenhagen 26 November 2010

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5.1 Introduction

Today, electronic products are everywhere in the households. The quantity is increasing; it is common to have a TV not only in the living room, but also in the bedroom, the kitchen and even in the children’s rooms. According to the Danish Energy Agency the number of TVs in Danish households has grown from around 2.2 million in 1980 to 5.5 million in 2008 [1]. That equals a growth from approximately 1 TV per household in 1980 to around one per person in 2008. This growth in TVs is rather steep, whereas for other products the growth has been more gradual. Also the variety of products is increasing; on the ICT side families have TVs, DVD players, Xbox, Play Stations or Wiis, PCs, laptops, fixed line phones, several mobile phones; the list could go on. With this amount of products the environmental impacts of a household cannot be traced back to one or two major contributors, but it is spread among many different products. Even though several of these products are getting more energy efficient, the amount and the use of ICT is expanding, causing a trend of increasing – or in the best case – stable electricity consumption.

The products are also getting more complex in terms of their function and the technique inside the products, but also their product chains are becoming increasingly intricate with a growing number of stakeholders involved during the products’ life time. A product might be sold in Denmark, while produced in South Korea with suppliers and sub-suppliers from China, Malaysia and Singapore delivering parts to the final product. Once the product is broken or out of fashion, it is thrown out – hopefully in a way that allows material re-use, and where toxic substances are handled properly. Unfortunately, loads of old ICT equipment end up in scrap yards in China,

India or Africa, where they are disassembled in ways that endangers both the environment and human health.

5.1.1 Integrated Product Policy

Current developments challenge the traditional approaches to regulation and stimulation of innovation of cleaner products. EU did respond to the above trends by introducing the Integrated Product Policy (IPP) in the late 90'ties. IPP was developed in cooperation between the Commission and stakeholders [2]. IPP is based on several key principles, first of all *the life cycle perspective* that means considering the entire product life cycle from the extraction of raw materials, production, transport, use, recycling and disposal. This aims at considering both the cumulative environmental impacts, and avoiding burden shifting, where environmental impacts in a single life cycle phases are addressed with the result of increasing the environmental impact in another life cycle phase. Furthermore, IPP is an integrated approach aiming at promoting measures to reduce the environmental impact of products at a point, where this is most effective [2]. This covers the product life cycle approach to ecodesign.

Further key principles of IPP are “working with the market”, “stakeholder involvement”, “continuous improvement” and “a variety of policy instruments” [2].

5.1.2 Product-oriented Policy Instruments

Since the introduction of IPP the overall frame for this type of initiatives has been labelled “Sustainable Consumption and Production”.

Furthermore, several legislations implementing a product oriented policy have been enacted. The following six are especially relevant in this context:

- Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
- Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE)
- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

- Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (ErP). Recast of Directive 2005/32/EC (EuP)
- Regulation (EC) No 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel
- Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products

Each of the regulations has their own rationale and approach to dealing with the life cycle impacts of products. The hypothesis in this paper is that the potential synergy between the different ecodesign directives on one hand and the energy- and eco-labels and REACH on the other hand is not fully utilized. The implementation of ecodesign principles and practices in European enterprises could be expanded with a more coordinated effort.

The synergy between different EU regulations is analysed in this paper with the aim of investigating to what extent ecodesign is implemented in the different directives. First, an analysis of the ErP Directive and its potential to implement ecodesign is presented. Thereafter, analyses on how ecodesign is implemented in the RoHS and WEEE Directives are presented. Analyses of EU's ecolabel and the energy label are presented and finally the synergy between the two different types of policy instruments is analysed. Throughout the paper the requirements for televisions will be used to exemplify.

5.2 Results

The concept of eco-design has been applied at enterprises and universities since the late 90'ties, and became well-known through publications e.g. the UNEP manual: "EcoDesign: A promising approach to sustainable production and consumption" in 1997 by Brezet and van Hemel; and "How to do eco-design" in 2002 by Ursula Tischner, et.al. Compared to other tools, the core focus of ecodesign is on all life cycle phases and the potential for environmental *improvements* of the product in each of these phases based on former knowledge and basic environmental design principles. More recently, eco-design has also been connected to more functional and system oriented approaches such Design for Sustainability, Product Service System and System Innovations.

This comprehensive approach to eco-design is somehow different from the approach chosen by EU in the different so-called eco-design directives.

5.2.1 The ErP Directive

The ErP Directive establishes a framework for setting ecodesign requirements for energy using and energy related products. The ecodesign requirements are set up in implementing measures (IM). The objective of the Directives is to ensure free movement on the market of products in compliance with the ecodesign requirements and

“it contributes to sustainable development by increasing energy efficiency and the level of protection of the environment, while at the same time increasing the security of the energy supply” [3].

The requirements of the IM will be gradually tightened in order to ensure continuous improvement. The implementation of the ErP Directive indicates that focus in the IM is towards only setting requirements for the energy consumption and energy efficiency. The argument for focusing solely on power consumption is presented in the comments to the Regulation. It is argued that environmental impacts related to hazardous substances in the TVs and waste from disposed TVs are addressed in the RoHS and WEEE Directives, respectively. In Table 1 the focus areas of the nine IM that have been adopted so far are listed. This shows clearly that focus is not on an integrated thinking as originally in the concept of ecodesign and IPP as well. The ErP Directive does however have the potential to implement ecodesign, if not only the area with THE most important environmental impact is addressed and if more generic requirements are set up.

5.2.2 The RoHS Directive

The RoHS Directive restricts the use of certain chemical substances in electronic and electrical equipment. The restriction concerns cadmium, lead, mercury, hexavalent chromium, poly-brominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE), in quantities exceeding maximum concentration values. While there is no direct formulation on ecodesign, the aim of the Directive is

“to contribute to the protection of human health and the environmentally sound recovery and disposal of waste electrical and electronic equipment” [4].

If electrical and electronic products do not comply with the regulation the products are prohibited from being sold on the EU market [5].

According to the Commission the RoHS Directive has prevented several thousand tonnes of the prohibited substances from being placed in the products. Furthermore, design practices in this regard have changed also in countries outside the EU. However, compliance checks in EU member states have revealed that up to 44% of the EEE that was checked for compliance does still not comply with the Directive [6].

5.2.3 The WEEE Directive

The WEEE Directive establishes an individual producer responsibility for the take back and treatment of WEEE by making the producer economically responsible for the take back and an environmental friendly treatment of WEEE for products produced after August 13, 2005. The producer can comply with this regulation individually or by joining collective recycling schemes with other producers. The WEEE Directive also sets requirements as to the recovery rates of the products in scope and it establishes treatment requirements for some particular materials and applications. The purpose of the WEEE Directive is,

“as a first priority, the prevention of waste electrical and electronic equipment (WEEE), and in addition, the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste. It also seeks to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, e.g. producers, distributors and consumers and in particular those operators directly involved in the treatment of waste electrical and electronic equipment” [7].

The idea behind the regulation is that [8]:

Producers should take the responsibility for certain phases of the waste management of their products. This financial or physical responsibility creates an economic incentive for producers to adapt the design of their products to the prerequisites of sound waste management. The financial responsibility of economic operators should also enable private households to return the equipment free of charge. Further, Article 4 of the Directive says: “Member States shall encourage the design and production of electrical and electronic equipment which take into account and facilitate dismantling and recovery, in particular the reuse and recycling of WEEE, their components and materials” [7].

A recent study has revealed that only seven member states have fully implemented the individual producer responsibility and seven member states have completely ignored the implementation of individual producer responsibility [9]. In the latter countries producers have not been made financially responsible for the take back of their own products. Instead all producers have been made collectively responsible for the treatment of all WEEE. In these member states the incentives for ecodesign due to recycling are non-existent, and it is questionable whether the WEEE Directive serves its purpose related to ecodesign at all.

5.2.4 The REACH Regulation

The REACH regulation is a chemical regulation which gives the industry major responsibility for managing the risk from chemicals and providing safety information on the substances.

The purpose of the Regulation is [10]:

“to ensure a high level of protection of human health and the environment, including the promotion of alternative methods for assessment of hazards of substances, as well as the free circulation of substances on the internal market while enhancing competitiveness and innovation.”

Roughly, the elements of the Regulation are [11]:

- All substances are covered by the REACH Regulation unless they are explicitly exempted from its scope
- Registration requires manufacturers and importers of chemicals to obtain relevant information on their substances and to use that data to manage them safely
- To reduce testing on vertebrate animals, data sharing is required for studies on such animals
- Better information on hazards and risks and how to manage them safely will be passed down and up the supply chain
- Downstream users are brought into the system
- Evaluation is undertaken by the Agency for testing proposals made by industry or to check compliance with the registration requirements. The Agency co-ordinates substance evaluation by the authorities to investigate chemicals with perceived risks. This assessment may be used later to prepare proposals for restrictions or authorisation
- Substances with properties of very high concern will be made subject to authorisation; the Agency will publish a list containing such candidate substances. Applicants will have to demonstrate that risks associated with uses of these substances are adequately controlled or that the socio-economic benefits of their use outweigh the risks. Applicants must also analyse whether there are safer suitable alternative substances or technologies. If there are, they must prepare substitution plans, if not, they should provide information on research and development activities, if appropriate. The Commission may amend or withdraw any authorisation on review if suitable substitutes become available
- The restrictions provide a procedure to regulate that the manufacture, placing on the market or use of certain dangerous substances shall be either subject to conditions or prohibited. Thus, restrictions act as a safety net to manage Community wide risks that are otherwise not adequately controlled
- The European Chemicals Agency (ECHA) will manage the technical, scientific and administrative aspects of the REACH system at Community level, aiming to ensure that the legislation can be properly implemented and has credibility with all stakeholders

- A classification and labelling inventory of dangerous substances will help promote agreement within industry on the classification of a substance. For some substances of high concern there may be a Community wide harmonisation of classification by the authorities
- Rules on the access to information combine a system of publicly available information over the internet, the current system of requests for access to information and REACH-specific rules on the protection of confidential business information

As of December 2010 46 Substances of Very High Concern (SVHC) have been registered and 3343 Phase-in Substances are registered [12].

In May 2010 ECHA published a Facts report on the results of the first REACH EN-FORCE project, where REACH compliance was investigated. 878 manufacturers, 666 importers, 83 only representatives and 858 downstream users took part on the investigation. In 24% of the investigated companies non-compliance with the REACH Regulation was observed. The non-compliance was found within the registrations provisions, the safety data sheets and other defects. [13]

5.2.5 The EU Ecolabel

The EU Ecolabel is established in 1992. A large range of products can be awarded the ecolabel from campsite services to paint and refrigerators. In this paper the requirements for TVs are investigated further.

The latest Commission Decision on establishing the revised ecological criteria for the award of the Community Ecolabel to TVs was published in March 2009 and focuses on the following areas [14]:

- Power consumption in on-mode
- Power consumption in standby
- Maximum energy consumption
- Dismantling
- Life-time extension
- Chemicals in products
- Information requirements

From the above list it is clear that the EU Ecolabel expands the focus of criteria compared to the ErP Directive. Besides setting criteria to the energy consumption in the use phase, criteria are set to other life cycle stages and other types of environmental impacts.

Since the introduction of the label the number of labelled products and services has grown steadily. In the beginning of 2010 1064 licences were awarded, 6 of these to TVs. [15]

5.2.6 The Energy Labelling Directive

The first energy labelling framework Directive was adopted in 1992. The Directive sets mandatory energy labelling requirements for household appliances, such as refrigerators and washing machines. The first products to be energy labelled were refrigerators and freezers in 1994[16]. In 2010 a revision of the framework Directive was adopted, which includes energy related products in the scope [17].

As in the ErP Directive, requirements of the Energy Labelling Directive are set up in IM. To exemplify the IM for TVs is used.

The labelling requirements are that televisions placed on the European market must be supplied with a label with the following information [18]:

- the energy efficiency class
- the on-mode power consumption and the annual on-mode energy consumption
- the screen size in diagonal

Obviously, the label's main focus is on energy efficiency, however also the noise level, water consumption, drying performance of products such as dishwashers needs to be provided on the energy label. The intention is that the criteria for labelling shall be gradually tightened to continue to promote energy efficient appliances also when products have become gradually better over time. In addition, the lowest energy efficiency categories are gradually phased out for washing machines, refrigerators, dishwashers because of the ErP Directive and televisions because of the Energy label [18, 19, 20, 21].

In Figure 1 the requirements regarding on-mode power consumption of the ErP Directive, the EU Ecolabel and the Energy labelling Directive is illustrated. As the Energy labelling Directive works with an energy efficiency index, which is divided in intervals, the lines in Figure 1 represent the maximum power consumption the products must have in order to obtain the given rating. As an example, in order for the product to obtain the energy efficiency rating A+ the product must have a power consumption that is between the A+ line and the A++ line.

5.2.7 The Synergy between Policy Instruments

Two results can be concluded from the above;

- The synergy between the different product policy instruments can be improved
- The synergy between the ErP, WEEE, RoHS Directives and REACH Regulation can be improved

Six product-oriented policy instruments are presented above. Five of the instruments are mandatory – the ErP, RoHS, WEEE and Energy labelling Directives, and REACH Regulation – while the EU ecolabel is voluntary. The three directives set minimum requirements that expel the worst performing products from the market, while the Energy labelling Directive aims at giving the producers incentives to produce continuously improved products. The Ecolabelling Directive also aims at creating incentives for producers to produce environmentally improved products, but on a voluntary basis, and for the best 10–20% of the product group.

In Figure 2 the aim of the different policy instruments is illustrated. RoHS and ErP directives set minimum standards for products' environmental performance, thereby removing the worst performing products from the market. In the other end of the scale, ecolabels set voluntary criteria that only the best performing products on the market can fulfil. The ecolabels are continuously updated and tightened to ensure that only the 10–20% best products can fulfil the criteria. In this way the ecolabels can generate changes in the market that can create a pull towards more environmental friendly products.

It is recognized that the directives, regulation and the ecolabels are creating different incentives to the manufacturers, cf. Figure 2. However, as the IM of the ErP Directive is not setting comprehensive requirements in terms of fulfilling the overall aim of ecodesign, then the rather obvious linkage between the ecolabel and the IM have not been utilized.

Many years of work and experience has been put in the ecolabels with setting environmental criteria for products based on the hot spots of a products environmental performance. By creating a common information platform/evidence base between the different policy instruments this knowledge could have been utilized and have led to a faster and more comprehensive implementation of the ErP Directive by including more environmental impacts categories in the scope of the IM. This type of synergy is visible when considering the proposal for IM of the Energy labelling Directive. The energy efficiency index determining the rating applied to TVs and other products fits for some of the categories to both the EU Ecolabel and the IM of the ErP Directive.

5.2.8 The Synergy between ErP, WEEE and RoHS Directives

It is a balance on the one hand to develop regulations of the environmental impacts of products from a life cycle perspective and on the other hand not create inexpedient double regulation that confuses producers, consumers and regulators. However, the objective of the ErP Directive can only be fulfilled by looking at the entire product life cycle and set requirements to all important environmental impact categories.

Especially, the WEEE Directive has not yet fulfilled its objective to create an incentive for ecodesign for recycling, and a challenge for revision of the IMs under the ErP Directive in the future is to set specific requirements on design for recycling, material use, etc. without conflicting with the WEEE Directive (since WEEE does not set such requirements). The RoHS Directive has to some degree fulfilled its objectives, but improvements can be made, for instance by including more substances. Chemical requirements in the ErP IM could be an information obligation on the product's content of Substances of Very High Concern (SVHC) of the candidate list in the REACH Regulation.

As the existing regulations only to a limited degree fulfil their objectives on ecodesign, the ErP Directive could without compromising other regulations encompass requirements on the environmental impact of the entire life cycle of the products. It is likely that requirements in three different directives creates confusion and lack of coherency – and one way to avoid “double regulation” is obviously to gather directives with the same overall objective – ecodesign – in a common Directive.

In spite of the critical comments to the current processes and focus of the IM, the ErP Directive is a strong policy instrument for achieving improved energy efficiency. Further, ErP has the potential to be an instrument for achieving environmental improvements in the product life cycle and the ErP directive is more dynamic by tightening the requirements – compared to ROHS (that just was recasted without significant changes) and WEEE that fails on the ecodesign dimension. Besides, a further benefit is that it will create clarity among regulators, producers and consumers, and the manufacturers will only have one “door” to consider – in the long run generic requirements of the ErP Directive could be a guidebook on ecodesign and on how enterprises can develop cleaner products.

5.3 Discussion

The ErP Directive has achieved its objective, when it comes to removing products with poor energy performance from the internal market in EU. The directive is a strong policy instrument and very likely the most important means to reduce energy consumption in the EU. Furthermore, the directive has the potential to be a driver for innovation, if the requirements in the IM are gradually tightened – reflecting new technologies and market changes.

However, as an ecodesign directive the aim of ErP can also be seen as to make manufacturers “embed” ecodesign practices in their design and operation practices. In this respect, the ErP Directive has been less successful as the IMs focus almost exclusively on energy consumption in the use phase. Taking the two other Directives into consideration, the RoHS Directive has created changes, but no more than the restrictions of

RoHS, while for the WEEE Directive, there has not been much change concerning ecodesign. Looking at the criteria for TVs of the European ecolabel more environmental aspects are included and the criteria decided for on-mode power consumption are stricter.

Therefore two conclusions can be drawn:

- It is time to create a synergy between the IPP directives and the European ecolabels and thereby utilize the knowledge that already exist on environmental hotspots for the different products groups. For instance by introducing a common information platform/evidence base. A further benefit besides sharing of knowledge and experience is that a common evidence platform will reduce the time for preparatory studies when developing new requirements
- In order to stimulate ecodesign practices among manufacturers, one possible solution is to strengthen the ErP Directive in being THE ecodesign directive, which also was the intention when an ecodesign directive first was discussed. The Erp directive could include more environmental aspects and life cycle phases into the requirements, rather than rely on the other legislative acts (RoHS, WEEE) to address these issues, which has not been the case so far. As an example, the WEEE Directive could continue to focus on waste handling, while the ErP Directive could take up the eco-design requirements in order to challenge choice of materials, recyclability, durability, easy-to-repair, etc. This could be of benefit to especially smaller companies with few resources to do ecodesign and also it would help the legislators to prevent contradiction between the directives and regulations. Further, it would reduce the lack of coordination and different ownership between different departments in the Commission

Table 1: Focus area of the nine adopted IM of the ErP Directive [22, 23, 24, 25, 26, 27, 28]

	Entry into force	Adopted	Power consumption	Energy efficiency	Lamp efficacy	Performance	Motor efficiency	Information requirements
Television	12.08.09	22.07.09						
Standby and off-mode losses	07.01.09	17.12.08						
Battery chargers and external power supplies	27.04.09	07.04.09						
Tertiary lighting	13.04.09	18.03.09						
Simple set-top boxes	25.02.09	04.02.09						
Domestic lighting	18.03.09	14.04.09						
Electric motors	12.08.09	22.07.09						
Circulators	12.08.09	22.07.09						
Domestic refrigeration	12.08.09	22.07.09

Figure 1: On-mode power consumption requirements of the IM of the EuP Directive, the EU Ecolabel and the forthcoming energy label for TVs.

Figure 2: The scope of the ErP and RoHS Directives compared to the scope of the Ecolabel.

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6. Policy Brief 3: Standardisation and Innovation

Energy-related Products (ErP) Directive and the Role of Standardisation in Driving Innovation

Brief prepared for the Workshop on “Ecodesign and Resource Efficiency” in Copenhagen 26 November 2010.

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This briefing document aims to provide background to the discussion on role of standardisation in the Energy-related Products (ErP) Directive and its impact on product innovation. It provides a brief overview of the Directive’s intent, the process of developing implementing measures to date, and the general outcome of the essential requirements found in the Regulations supporting the Directive.

An introduction to the European Standardisation System (ESS), provides the context to the specific application of harmonized standards with respect to the Directive and its Implementing Measures. The current application of European and other standards in the ErP framework is presented, followed by a general discussion on the suitability of standardisation to drive environmental innovation as implemented to date, and need for further standard development to support the setting of implementing measures.

6.1 Introduction

6.1.1 The ErP Directive

Directive 2005/32/EC of the European Parliament and of the Council establishing a framework for the setting of ecodesign requirements for energy-using products’ (the “EuP Directive”) was adopted in July 2005[1]. It has subsequently been repealed by Directive 2009/125/EC. setting ecodesign requirements for energy-related products, extending the scope to other products that indirectly impact energy use including for example, building insulation and windows [2].

This European Union (EU) Directive aims at improving the environmental performance of products throughout their life cycle by systematic integration of environmental aspects at the earliest stage of their design.

By introducing EU-wide rules for eco-design, the EU aims to ensure that national regulations do not become obstacles to intra-EU trade. The Directive does not introduce directly binding requirements for specific products, but defines conditions and criteria for setting requirements on a product-by-product basis.

The European Commission sets these product-specific requirements under the EU comitology process, provided that the product group:

- Has a significant impact on the environment
- Has a high volume of trade in the EU
- Has clear and significant environmental; improvement potential

For the purposes of deciding on implementing measures, the Commission is assisted by a Consultation Forum of stakeholders and a Regulatory Committee composed of EU Member State representatives. The European Parliament has a right of scrutiny on implementing measures, which can take various forms, including regulations or voluntary initiatives by industry sectors.

The process of developing and eventually adopting implementing measures has been described as a 4-step process as presented below.

Table 1: Process of Implementing Measure Development

Step 1	Preparatory study to determine whether and which ecodesign requirements should be set: 11-21 months with 1-3 stakeholder meetings to discuss draft chapters
Step 2	Submission of a first Working Document to the Consultation Forum
Step 3	Submission of a refined draft measure to the Regulatory Committee (including an impact assessment and European Commission inter service consultation): usually 3 to 6 months after the Consultation Forum meeting
Step 4	Final adoption by the Commission after European Parliament and Council Scrutiny and WTO notification: 6 to 12 months

To date, regulations laying down implementing measures have been adopted for the following product groups, including several horizontal measures: Circulators [3], Electric Motors [4], Refrigerators and Freezers [5], Televisions [6], External Power Supplies [7], Lighting products in the domestic and tertiary sectors [8],[9], [10], Simple Set Top Boxes [9], Standby and off mode electric power consumption [11]. DG Enterprise and DG Energy has in a mutual publication estimated that the minimum energy performance standards for these nine product groups are equivalent to 12% energy savings in the EU electricity consumption in 2007 – compared to a business as usual case.

Additional implementing measures that are currently under development or being revised include those for PCs and Monitors, Boilers, Water Heaters, Air Conditioners, Ventilation Fans, Commercial Refrigerators, Tumble Dryers, Dishwashers, Tertiary lighting, and Vacuum

Cleaners. There are over 10 other product groups which are currently in the preparatory study phase.

In terms of self-regulation, voluntary initiatives have been proposed for 4 product categories; complex set top boxes, printers, machine tools and medical equipment. The endorsement of the voluntary initiative for set top boxes could take place as early as November 2010. The white goods industry has made several voluntary commitments on energy efficiency, but has decided not to make use of them anymore. The reason was a general lack of enforcement of the EU energy label in the EU Member States, and the fact that some companies active on the Internal Market chose not to sign up to the voluntary commitments, establishing an unlevelled playing field.

The requirements reflected in regulations to date focus almost entirely on specific measures of the energy efficiency of the appliances as the preparatory studies had identified this as the most significant aspect, contributing significantly to greenhouse gas emissions [15, 18]. One exception is washing machines where also the water consumption is regulated. For some products, aspects relating to materials and hazardous chemicals were also under consideration during the preparatory study phase but did not emerge in the final implementing measures. Instead, the risks from potentially hazardous substances were deemed to be affectively addressed through the RoHS Directive and the REACH Regulation. Impacts related to the sourcing and use of materials has been ignored. End-of-life considerations related to choice of materials, recyclability, and reusability are somehow expected to be addressed through the WEEE Directive, but this has not been the case so far, and there are few signs of such developments arising.

6.1.2 ErP and the New Approach?⁹

Although the ErP Directive is not formally recognized as a New Approach Directive per se, the directive is in accordance with certain principles for the implementation of the new approach as set out in the Council Resolution of 7 May 1985 on a new approach to technical harmonisation and standards and of making reference to harmonised European standards.

This is made explicit in Recital 34 of the ErP Directive and it is further noted that, the Council Resolution of 28 October 1999 on the role of standardisation in Europe recommends that the Commission examine whether the New Approach principle could be extended to sectors not yet covered as a means of improving and simplifying legislation wherever possible [2]. Including this statement in the ErP recitals is essentially

⁹ Note: The New Approach has recently been revised and integrated into the New Legislative framework [http://ec.europa.eu/enterprise/policies/single-market-goods/regulatory-policies-common-rules-for-products/new-legislative-framework/index_en.htm], the main principles are however the same as before.

providing the justifying for the extension of New Approach principles into environmental policy.

Directives based on this principle specify only the “essential requirements” for products to comply with to ensure a high level of protection (for health and safety, environmental protection, etc.). The “essential requirements” must be worded so as to produce binding obligations that can be uniformly enforced by Member States. In the case of the ErP Directive, the essential requirements are outlined in implementing measures included as supporting regulations. The Commission then mandates European Standardisation bodies to define “voluntary” technical standards that manufacturers may use to conform to in order to place their products on the EU market. If a manufacturer complies with the harmonised standards, its products are presumed to meet the requirements. Manufacturers have a choice regarding demonstrating compliance, either to apply the harmonised standards or show conformance through appropriate documentation.

Directives also lay down conformity assessment procedures for evaluating compliance with the essential requirements, taking into account identified potential risks associated with the product. In line with New Approach directives, the ErP requires that before a product covered by an implementing measure is placed on the market a CE marking shall be affixed and a declaration of conformity issued.

Member States are responsible for market surveillance to ensure non-conforming products are withdrawn from the market.

The ErP Directive differs from New Approach Directives, in that essential requirements are laid out in implementing measures rather than in the Directive itself. New Approach Directives rely on self-assessment and certification based on internal production control (Module A) or the mandatory involvement of a European lab (Modules B-H); the risk posed to the consumer is key in deciding what module to apply. Under the ErP Directive, there will be no involvement – either mandatory or voluntary – of any competent or notified bodies in the pre-market assessment of conformity to ErP. It is based entirely on self-assessment and certification. However, notified bodies may be appointed in Member States to assist during the post market surveillance enforcement activity. The implementing measures usually outline the conformity assessment procedures options available to manufacturers and verification measures for market surveillance by Member States.

6.2 Standardisation

Standardisation is a crucial but often neglected factor for innovation and economic development. Standards may be of different types (product standards, process standards, management standards, measurement

standards, and so on) and may differ in terms of coercion (e.g. mandatory, voluntary, semi-voluntary) [19]. Standards may both hinder and aid innovation, depending on the circumstances [20]. They are however often very important – even crucial – for product and service development as they provide a platform for innovative activities and international transfer of technologies. Most actors agree that the European standardisation system has been crucial in removing technical barriers to trade, and has played a vital role in ensuring the free movement of goods between Member States (a key objective of the ErP Directive). The international standardisation system has been even more crucial in removing barriers to trade. Regarding standardisation projects initiated by the Commission, there are documented cases of both successes and failures [20].

6.2.1 *Standardisation in the European Context*

The regulatory framework for standardisation in Europe essentially consists of three pieces of legislation [12]. Directive 98/34/EC provides for a system of transparency and notification which obliges National Standards Organisations (NSOs) to inform the Commission, European Standards Organisations (ESOs) and other NSOs when they are preparing or planning to amend an existing national standard. The Directive designates three European Standardisation Organisations (ESOs) (CEN, CENELEC and ETSI) and NSOs which are listed in the Annexes as actors in standardisation development. The Directive provides for the mechanism allowing the Commission with assistance of a Regulatory Committee to request ESOs to draw up a European standard within a given time limit.

Secondly, although they are private organisations, ESOs are considered to be bodies pursuing an objective of general European interest and therefore, the three ESOs are also partly financed by the European Union pursuant to Decision 1673/2006/EC⁷. Thirdly, the legal framework of standardisation is completed by Council Decision 87/95/EEC⁸ in the Information and Communications Technology (ICT) sector.

As noted in the Commission's White Paper on Modernisation ICT Standardisation in the EU, standardisation in this sector has dramatically changed over the last decade [13]. In parallel to the traditional standard setting organisations, specialised and mostly global fora and consortia¹⁰ have become more active with several emerging as world-leading ICT standards development bodies. This development is not however reflected in the EU standardisation policy. Fora and consortia standards cannot currently be referenced, even if they could be of benefit in helping to achieve public policy goals. According to the Commission, without decisive action the EU risks becoming irrelevant in ICT standard setting

¹⁰ CEN maintains a list of standards related fora and consortia at <http://www.cen.eu/CEN/sectors/sectors/iss/consortia/Pages/default.aspx#>

which will take place almost entirely outside Europe, and without regard for European needs.

6.2.2 A Definition of European Standards

A standard, as defined in Directive 98/34/EC is a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not compulsory and which is one of the following:

- international standard – a standard adopted by an international standardisation organisation and made available to the public
- European standard – a standard adopted by a European standardisation body and made available to the public, and
- national standard – a standard adopted by a national standardisation body and made available to the public

Given the above, the application of harmonised standards in the European context of standardisation would not include legal limit or threshold values (for efficiency, resource use, etc.) set in mandatory legal instruments. As this briefing focuses on the role of standardisation in relation to the ErP Directive, the role of regulatory standards (minimum requirements) used in the ErP Directive, shall be only indirectly discussed.

6.2.3 Harmonised Standards

Harmonised standards are European standards, which are adopted by European standards organisations (ESOs), prepared in accordance with the General Guidelines agreed between the Commission and the European standards organisations. The development of standards follows a mandate issued by the Commission after consultation with the Member States.

Standards mandated under the New Approach are first adopted by the relevant standards body following their own internal procedures. The standards adopted by the European standards bodies do not become part of formal legislation, incorporated into a Directive (or supporting Regulations in the case of ErP) with the explicit approval of the Member States, but are recognised by the Commission in a Communication published in the Official Journal. The Commission may however come to the conclusion that a proposed standard does not fulfil the requirements, and ask the ESO to submit a new proposal. The standard will not be published in the Official Journal if it does not fulfil the requirements. The provisions of the underlying Directive presume that goods produced in line with the harmonised standards published in the Official Journal conform with the essential requirements of the Directive.

6.3 Current use of Standardisation in the ErP

Leading up to the introduction of the EuP Directive there was a considerable amount of criticism from environmental NGOs regarding the use of standardisation in environmental policy. NGOs questioned the integrity of mandating standardisation bodies to develop harmonised standards as these organisations are often industry dominated, lack public accountability, democratic procedures and effectively exclude non-commercial interests [14]. This is part of a bigger debate on the potential and pitfalls of delegated decision-making in the EU [17, 21, 22] and the power to set different types of standards [19].

The Commission has recognised the legitimacy of this concern and has taken a number of concrete actions to address them. For example, it awarded a service contract to ECOS¹¹ to coordinate the work of NGOs into the standards development process both at EU institutions and standardisation bodies. ECOS has been an associate member of CEN since 2003 and a co-operating partner of CENELEC since 2005. ECOS is also a “liaison organisation” to (currently four) technical bodies (TCs and PCs) of ISO and IEC. In addition CEN has developed and environmental help desk provides technical advice to standard writers through networks of environmental experts, financially supported by the Commission. CENELEC has developed an Environmental Database that will pool all environmental aspects dealt with by CENELEC and will help to give access to environmental knowledge.

NGOs also had considerable concern over the suitability of extending the New Approach to environmental legislation, because of the way it had been implemented to date with respect to health and safety issues, and experiences gained in the field of packaging waste. While the basic idea was that all “political” aspects should be settled by the political processes prior to the standardisation work phase, some degree of political decision like limit or emission values or similar parameters, have in many cases been left to the standardising process.¹²

There is also some scepticism among industries regarding the use of standardisation and the New Approach concept for environmental issues. The use of measurement standards to regulate issues such as energy efficiency requirements is one thing, but creating and applying New Approach to environmental issues is a complex and sometimes uncertain issue. Industry is however split on these issues; there are many advocates of an increased use of the New Approach to address environmental issues.

Given the above, Recital 32 of the ErP Directive notes that one of the main roles of harmonised standards should be to assist manufacturers in applying the implementing measures adopted under the Directive and

¹¹ European Environmental Citizens Organisations for Standardisation

¹² As the politically established requirements must be made concrete also at the “technical” level, and the technical requirements and the potential for measurement and validation of compliance are closely related, the issue is quite complex.

that standards could be essential in establishing measuring and testing methods that can be used to illustrate conformance with specific ecodesign requirements.

In the case of generic ecodesign requirements, the Commission notes that, harmonised standards could contribute considerably to guiding manufacturers in establishing the ecological profile of their products in accordance with the requirements of the applicable implementing measure. These specific and generic requirements should clearly indicate the relationship between their clauses and the requirements dealt with [2]. The Commission is clear that the purpose of harmonised standards should not be to fix limits for environmental aspects.¹³

6.3.1 Specific Ecodesign Requirements

As discussed earlier, specific ecodesign requirements in implementing measures proposed or included in regulations adopted to date, have almost entirely been limited to energy efficiency requirements. Results of the MEEuP, conducted in the preparatory studies have consistently identified energy use in the use phase as the most significant environmental aspect of the product life cycle. While there has been some criticism of the emphasis placed on the energy efficiency performance of appliances this has largely been ignored. Therefore, with respect to the use of voluntary European standards to illustrate conformance with specific ecodesign requirements, this has been limited to the use of measuring and testing procedures for energy efficiency of ErPs.¹⁴

6.3.2 Generic Ecodesign Requirements

The application of generic eco-design requirements in implementing directives is laid out in Annex 1. Generic ecodesign requirements aim at improving the environmental performance of ErPs focusing on significant environmental aspects thereof without setting limit values.

When laying down generic ecodesign requirements, the Commission will identify as appropriate to the ErP covered by the implementing measures, the relative environmental parameters¹⁵ listed in Part 1, the manufacturers requirements relating to the supply of information that may influence the way the ErP is handled, used or recycled listed in Part 2,

¹³ The issue is controversial; some industry actors believe that this requirement can inhibit the potential for standardisation to achieve positive outcomes.

¹⁴ However, the requirement from the Commission that mobile phone companies must standardise chargers – to allow consumers to use the same charging device should they swap phones – was partly motivated by resource use considerations. This led to a voluntary industry agreement. The ESOs have received a common standardisation mandate to aid the process [European Commission. Standardisation mandate to CEN, CENELEC and ETSI on a common Charging Capability for Mobile Telephones. M/455 EN. 1 October 2009]

¹⁵ As an example, Part 1 (1.3) lists parameters such as the weight and volume of the product, use of materials issued from recycling activities, consumption of energy, water and other resources throughout the life cycle, ease of reuse and recycling expressed through a variety of metrics including time necessary for disassembly. Others include emissions to air, water and soil.

and the requirements for the manufacturer listed in Part 3. Part 3 includes the requirement of a manufacturer to conduct an assessment of the Energy-related Product throughout its life cycle, develop an ecological profile of the ErP, and evaluate alternative design solutions and benchmark the chosen design achieved against best performing products.

While some generic ecodesign requirements remain in the final implementing measures, these are mostly concerned with the supply of information to consumers with respect to correct operation of the ErP in the use phase as well as parameters that are related to product performance and energy efficiency. There are some exceptions, including the requirement that the amount of mercury in milligrams be presented on the product or its packaging, in the case of domestic lighting.

However, there are no adopted or draft implementing measures that require manufacturers to perform an assessment of the ErP through its life cycle, to develop an ecological profile, or to evaluate alternative design solutions and the expected performance of these alterations against benchmarks.

Despite the lack of uptake of generic ecodesign requirements in the implementing measures to date, there are several normative standards developed (e.g. by IEC) which could potentially be referenced or used to develop European standards, especially in relation to assessments to be conducted by manufacturers. These are discussed in Section 4 below.

As generic ecodesign requirements have not been applied as initially expected, it is perhaps time to raise the question if we need to develop the whole concept of generic requirements; further analyse how manufacturers and importers can show compliance with such rules, and; how the monitoring of legal compliance should be performed.

6.3.3 *Conformity Assessment*

Harmonized European and International standards may also play a role assisting manufacturers to demonstrate compliance with implementing measures. In line with New Approach directives, a “conformity assessment”, which ensures that a product fulfils the essential requirements in an implementing measure, must be performed before an EuP can be placed on the market.

Article 8, and Annexes IV–V, provide the framework for this, with the conformity assessment procedure specified in the applicable implementing measure, and provides the manufacturer, representative or importer with two choices, namely an “internal design control” or the use of a management system.

The procedure for internal design control is described in Annex IV, and is mainly concerned with the creation of a technical documentation file and its main content. Annex V describes the use of manage-

ment systems to prove conformance and the necessary elements of the management system.

Article 8(2) states that if an ErP is designed by an organisation that has an EMAS registration, and the design function is included in the registration, the management system shall be presumed to comply with Annex V. Further, Article 8(2) states that the same presumption is given also to other management systems if their reference numbers have been published in the Official Journal.

Therefore, in addition to EMAS registered organisations, manufacturers with ISO 9001 and ISO 14001 management systems are sanctioned to use them as tools for conformity assessment, as these standards are referenced in the Official Journal.

6.4 Discussion

Regarding NGO concern over ErP implementing measures relying on standardisation bodies to determine the level of environmental protection in the standardisation process, it seems that the Commission has been diligent in ensuring that the essential requirements are clearly decided during the political process. In most cases the specific minimum efficiency levels, and the corresponding methods for measuring the energy consumption or water consumption, are specified within the specific ecodesign requirements found in the respective implementing measure. This has entailed considerable work on the part of the Commission, for issues which in the traditional application of the New Approach Directives may have been left up to ESOs to determine.

As a result, it is not surprising that the mandates that the Commission has issued (or is planning to issue) to ESO's for standard development are primarily concerned with developing procedures and methods for measuring energy and water consumption and functional efficiency and formatting of test reports.

6.4.1 *Specific Ecodesign Requirements*

Energy use in the product use phase has theoretically the least uncertainty in terms of measurement and testing protocols for product performance assessment. There are existing standards developed by international and European standardisation bodies that can be used by consultants performing preparatory studies and the European Commission to develop minimum requirements. Even so, the process of developing these measurement standards have been quite complex. When applied, inconsistencies have been noticed, and in several cases the standards have been revised. While some of these standards need further revising in general minimum requirements on the energy usage of appliances are

well known. The same cannot be said for aspects other than energy efficiency, such as measuring the level of recyclability or reparability, for example [15]. Standards in these areas would be much more complex, and also more complex to develop.

It is important to realise that any standard for products will influence the future design of the products as products are optimised towards the measurement standard. A measurement standard, if not well considered, can quickly drive the development of products towards an undesired outcome.

Despite this, there are certain examples of existing standards covering ErPs, developed by fora and consortia that do address aspects other than energy or water efficiency in the use phase. For instance, IEEE 1680 – EPEAT is a standard (for personal computers and monitors) or soon to be family of standards (other electronics to be considered) that includes a measurement standard for determining whether a product meets design for shredding criteria in EPEAT¹⁶ [16].

Although it is recognised that neither the current legal framework of European standardisation, nor the rules on public procurement allow referencing of such fora and consortia in regulations of public policies, the Commission itself suggests enabling the referencing of specific fora and consortia standards in relevant EU legislation and policies subject to a positive evaluation of the standard and the forum or consortium processes with regard to openness, consensus, balance and transparency. The Commission also recommends promoting better cooperation between fora and consortia and ESOs on the basis of a process which would lead to standards issued by the ESOs [13].

The IEC standards are international standards, developed to provide assistance to manufacturers and other actors. IEC has a number of existing standards of relevance, both relating to guidance and compliance with requirements, e.g.:

- IEC 62430. Environmentally conscious design for electrical and electronic products
- DD IEC/PAS 62545:2008. Environmental information on electrical and electronic equipment (EIEEE)

More IEC standards are under preparation, e.g.:

- IEC 62474. Material declaration for products of and for the electrotechnical industry

¹⁶ In order to satisfy this requirement manufacturers must eliminate the use of paint or coatings that are not compatible with recycling or reuse. The specific product criterion states that: Plastic parts > 100g on a product shall not contain paints or coatings that are not compatible with recycling or reuse, including metal coatings. EPEAT defines compatible in this context as the following: Paints and coatings on plastic parts are proven to be compatible with recycling processes if they do not significantly impact the physical/mechanical properties of the recycled resin. Significant impact is defined as >25% reduction in notched Izod impact at room temperature as measured using ASTM D256.

- IEC/TS 62650. End of Life information exchange for electrotechnical equipment between manufacturers and recyclers

The IEC standards will however not apply to all product groups that will be regulated through the ErP Directive, and they will probably not cover all relevant aspects. Further, there is currently no “links” between the IEC standards and the implementation of the ErP Directive. However, if more generic requirements are to be used under the ErP Directive, the IEC standards could perhaps form a base for further standardisation efforts by ESOs.

An issue that needs to be investigated further concerns the need for new European standards that deals with issues such as design for shredding and recyclability, toxicity, material choice and other issues which have generally been neglected in the current process of setting IMs. The feasibility of such standards need to be considered for each issue. Such standards may be necessary in order to set new types of requirements, as well as to show compliance with them.

6.4.2 Generic Ecodesign Requirements

Historically, the drafts for the EEE Directive, which preceded the EuP Directive and now ErP Directive, had an approach to embedding life cycle thinking and eco-design that is quite different from the one envisioned in the final EuP Directive. In the EEE Directive, the main vision as outlined in the text was that manufacturers should make a (simplified) LCA, create an ecological profile, and use this for prioritisation of design solutions. The EEE text made it possible for the Commission to implement mandatory measures, but the impression given was that this would be the exception rather than the rule. In other words: the EEE Directive could have been effective in forcing manufacturers to collect life cycle data and actively pursue eco-design measures, while it would have not required manufacturers to reach absolute performance standards. This means that the proposed EEE Directive was, potentially, a good instrument for integrating life cycle thinking in companies, while the effectiveness, in terms of concrete environmental improvements, would not have been guaranteed [17]. Any requirement for life cycle data or analysis would also need to be applied equally to domestic producers and imported goods to secure competition on equal terms.

With the subsequent introduction of the EuP Directive Draft, including the amendments made, the situation for the ErP Directive is rather the opposite. It is the role of the Commission and the Regulatory Committee to make use of LCA methodologies to identify the most significant impacts and develop implementing measures to address the significant impacts. As implied by the wording of the ErP Directive, manufacturers are only obliged to work with those aspects identified as significant when making the ecological profile. In fact implementing measures to

date have not required manufacturers to do any assessments of their products or to develop an ecological profile of their product designs and compare these to best practice benchmarks. This indicates that the ErP Directive will not be as effective at integrating life cycle thinking among manufacturers as the EEE Directive would have been if enacted.

Therefore, some of the “pedagogical” elements, which would have forced manufacturers to learn more about their life cycle impacts and eco-design options, have been lost. In terms of product innovation, this is quite unfortunate [17]. We should of course acknowledge, however, that life cycle thinking cannot be achieved merely through a legal requirement. It is something that needs to be stimulated and slowly evolve over time. If there would be a requirement for providing a simplified life cycle assessment some companies (especially those that have no own production) would very likely outsource and buy such generic data and analysis from consultants to become legally compliant with the requirement. This would not help to increase the knowledge and understanding of life cycle thinking. Someone would also have to assess if company reports regarding life cycle assessment are sufficient and correct. Such compliance checks and interpretation would also need to be the same between all EU member states.

In the preparatory study for televisions, the consultants recommended that TV manufacturers should conduct an assessment of their products based on the ECMA 341 or IEC 62430 standards, which are essentially checklists for general design practices that designers need to consider when designing new products [15]. The motivation provided was that this requirement would force TV design teams to consider relevant environmental aspects which cannot be addressed by specific ecodesign requirements. This requirement was subsequently dropped, however. Industry stakeholders have expressed support of the use of such standards, but stated that there are uncertainties regarding how a manufacturer would document and demonstrate compliance with such a standard, including test results [15]. Another concern is how such a requirement would be consistently enforced on all market actors.

There are several issues that need to be discussed in connection to the above. These include whether generic ecodesign requirements which provides reference to standards for ecodesign are appropriate from a legal perspective. An associated question concerns whether only ESO standards should be used for this purpose, and if there are needs to develop specific European and/or international standards.

An associated issue concerns whether generic requirements connected to ecodesign or supply of information should be set under IMs under the ErP Directive, or if we need a Directive that sets general requirements regarding these issues for all product groups on the market, similar to the product Safety Directive. A Framework Directive on the Environmental Soundness of Products, with features on the Product Safety

Directive has been discussed in several reports [23, 17]. One benefit of such a Directive, i.e. a horizontal legislation regarding the environmental performance of products, is that environmental protection would gain more importance in voluntary standardization [24, 17].

6.5 Summary

Considering that standardisation mandates and the subsequent development of harmonised standards are dependent on the politically agreed essential requirements found in the implementing measures it is not surprising that standards to be developed under the ErP Directive have been limited to procedures for testing and measurement of product aspects associated with energy and water consumption and in certain cases product performance as it relates to efficiency.¹⁷

While this is positive from the perspective of ensuring that standardization bodies are not provided undue powers to set limits for other environmental aspects such as chemicals and materials in products that impact additional life cycle phases, it does limit the contribution that harmonized standards can provide to reducing the life cycle impacts of products. In other words, the contributions that standardisation can make to environmental product innovation are limited by the scope of implementing measures. The existing standards – IEC 62430 – could be used to prove conformance with generic ecodesign requirements, but so far few generic requirements have been set.

A new, horizontal mandate for the ESOs are planned by the Commission. This would mean that the ESOs are involved earlier in the process, and the time for preparing standards is shortened. If the relevant technical committees in IEC/ISO were active already during the preparatory studies, this could potentially improve both the regulatory process and standardisation processes.

Implementing measures could potentially address many more environmental aspects than just energy use and other resource use in of the product. This is especially the case since other instruments such as the WEEE Directive on the take-back and end-of-life management and the RoHS Directive restricting the use of hazardous substances in EEE are not achieving some of their objectives satisfactorily. However, to define specific target levels for the reusability, recyclability and recoverability of EEE in the absence of appropriate measurement standards would be time-consuming for the Commission and the Regulatory Committee. This stresses the importance of the role of European standardisation bodies in developing measurement standards for these aspects.

¹⁷ For some ErP lots, IEC had already developed relevant standards, which in practice formed the base for implementing measures proposed under the ErP Directive. Thus, international standardization can be in some cases be used as “the standard” for ErP processes.

While for the most part these standards are non-existent today, this does not restrict the Commission from issuing a Mandate to ESOs to begin this work. This could be coordinated through the relevant international organizations such as IEC and could take into account relevant work that has begun in this area (e.g. IEEE EPEAT standard mentioned above).

With respect to the generic ecodesign requirements in terms of obligating manufacturers to systematically review the environmental performance of their products, develop an ecological profile, and show improvements over successive product releases, existing environmental voluntary standards should be further explored as this has the potential to harness innovation in firms. If the standards are voluntary, then the need to make such analysis also becomes voluntary. Some companies also perform such analysis already today to various degrees, driven by competitive reasons.

It needs to be secured that any requirements for the use of life cycle assessment and related tools will not only become a good business for consulting companies who provide such generic analysis and reports.

With the review of the ErP Directive scheduled for 2012, and requirement to review the effectiveness of the methodology for the identification and coverage of significant environmental parameters, there is an opportunity to review the underlying assumptions in the MEEUP methodology. With respect to the role of standardisation, the Commission may wish to consider the already existent international standards for conducting Life Cycle Assessments (LCA) if modification of the existing methodology is justified.

Regardless, of whether or not other life cycle stages are identified as significant in terms of the overall impact of EuPs (especially relevant for products with semiconductor components) the Commission may wish to consider updating existing implementing measures to address environmental impacts from life cycle phases other than energy in the use phase, especially when other regulatory and voluntary instruments are failing to meet their intended objectives.

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Sammenfatning

Denne rapport udgør afrapporteringen af projektet "Expanding the Scope of the EuP Directive", der er finansieret af Nordisk Ministerråd for miljø.

Projektet blev igangsat som følge af vedtagelsen af ændringen til Direktivet om energiforbrugende produkter (EuP) (Direktiv 2205/32/EC) i oktober 2009. Ændringen betyder, at energirelaterede produkter (ErP) nu også er omfattet af Direktivet (2009/125/EC). Med udvidelsen af direktivets virkeområde sættes fokus på interessante problemstillinger, som allerede er blevet diskuteret i EU i relation til bæredygtigt forbrug og produktion. Dette omfatter:

- Hvordan sikres en fælles informationsplatform, som kan bidrage til kravsspecificeringen for både energi- og miljømærker, grønne indkøbskriterier samt kravene i for eksempel ErP Direktivet?
- Hvad er den optimale synergi mellem minimumskrav i ErP Direktivet, energimærkningen af alle produkter og incitamenter til frontløber virksomheder gennem miljømærker?

De indtil nu vedtagne gennemførelsesforanstaltninger til EuP Direktivet har ifølge tidligere studier ført til et ensidigt fokus på energiforbrug i produkternes brugsfase. Derudover er sammenhængen og synergien til allerede eksisterende miljømærker, energimærker, grønne indkøbsvejledning og andre integrerede produkt politikker (IPP) nærmest ikke blevet undersøgt og udnyttet.

Målet med dette projekt var at organisere en workshop om ecodesign og ressourceeffektivitet. Hensigten var at bringe førende eksperter og andre interesserede sammen for at diskutere disse emner. Det nordiske perspektiv på konferencen er en fælles forståelse af (1) hvordan ErP Direktivet og især gennemførelsesforanstaltningerne kunne ændres således der stilles flere miljøkrav end udelukkende energieffektivitet, (2) hvordan de forskellige ecodesign direktiver kan supplere hinanden, (3) hvordan en fælles informations platform for IPP instrumenter kan realiseres samt (4) hvordan en synergi mellem standarder for minimumskrav og energi- og miljømærker kan blive etableret.

De primære konklusioner fra workshoppen er:

- Ecodesign er et effektivt og stærkt instrument til at opnå energieffektivitet og potentielt også miljømæssige forbedringer
- ErP Direktivet har potentiale til at fungere effektivt sammen med andre produktpolitik instrumenter som eksempelvis miljømærker,

energimærker, RoHS og WEEE Direktiverne and REACH forordningen.

Det er nødvendigt at holde dette potentiale for øje og udnytte synergien

- En bredere brug af ErP Direktivet kan give konkurrencemæssige fordele for europæiske virksomheder. Stringente krav kan stimulere en forøgelse af grønne kompetencer og hjælpe industrien til at blive førende på markedet. ErP Direktivet er en vigtig brik i det puslespil, der er nødvendig for at gøre EU til en ressourceeffektiv og grøn økonomi
- ErP Direktivet og måden hvorpå det er implementeret hæmmer dets potentiale som et instrument, der kan stimulere ecodesign praksisser og livscyklustænkning i virksomheder. Gennemførelsesforanstaltningernes gyldighedsområde, metoden til opstilling af krav og koblingen mellem Direktivet og andre EU lovgivninger bør tages i betragtning for at kunne forbedre Direktivet potentiale for opfyldelse af dets oprindelige formål
- En anbefaling til revisionen af Direktivet i 2012 er, at en integreret produktpolitik skal skabe en forbedret sammenhæng og synergi mellem de enkelte politik instrumenter. Dette blev understreget i tre af de fire sessioner. Derudover er en fælles vision og sammenhængende strategi på tværs af de forskellige politik instrumenter nødvendig for at opnå målene og sikre en transparent proces for alle involverede parter
- En yderligere anbefaling er at udvide ErP Direktivet til at inkludere både materialeeffektivitet og flere produktgrupper. Yderligere blev vigtigheden af at inkludere alle livscyklusfaser i krav fastsættelsen understreget. Denne kritik er dog mere grundet gennemførelsesforanstaltningernes fokus end ErP Direktivets gyldighedsområde. En mulig vej frem kunne være en trinvis tilgang, hvor miljøkrav opstilles som en del af den løbende stramning af kravene

Expanding the Scope of the EuP Directive

This report is the documentation from the project “Expanding the Scope of the EuP Directive”, financed by the Nordic Council of Ministers for the Environment.

The project was kick-started by the adoption the ErP Directive (Directive 2009/125/EC). The recast means that Energy-related Products now are included in the scope of the. With this expansion of the scope to energy related products, focus is put on interesting issues, which have already been discussed in relation to Sustainable Consumption and Production in the EU. This concern:

- How can a common information platform be ensured, which can feed the setting of requirements for both energy- and eco-labelling, green procurement guidelines and performance requirements in for instance the ErP Directive?
- How is an optimal synergy between the minimum performance requirements in the ErP Directive, the energy labelling of all products and incentives for front-runner companies through eco-labels?

The aim of this project was to organise a Workshop on Ecodesign and Resource Efficiency. The intention was to bring leading experts and other interested stakeholders together to discuss these issues. The Nordic perspective of the conference should be a common understanding of (1) how the ErP Directive and especially the Implementing measures could be changed to include more environmental requirements than just energy efficiency, (2) how the different ecodesign directives can supplement each other, (3) how a common information platform for IPP instruments can be realised and (4) how a synergy between minimum performance standards and energy- and ecolabels can be established.