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N O R D I C W O R K I N G P A P E R S

Policy Brief

Addressing resource efficiency through the Ecodesign Directive -
A review of opportunities and barriers

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<http://dx.doi.org/10.6027/NA2014-915>

NA2014:915

ISSN 2311-0562

This working paper has been published with financial support from the Nordic Council of Ministers. However, the contents of this working paper do not necessarily reflect the views, policies or recommendations of the Nordic Council of Ministers.

Resource efficiency and the Ecodesign Directive

A review of opportunities and barriers

Policy Brief

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The legal standards set under the EU Ecodesign Directive do primarily regulate energy efficiency in the use phase. This brief summarizes the main findings in the project “Ecodesign and Future Product Policy”, financed by the Nordic Council of Environmental Ministers. The main aim of this project has been to analyse the potential for setting legal requirements related to resource use that would stimulate resource efficiency and increase recycling. The study builds on literature, case studies of different product groups, analyses of resource requirements applied in various policy instruments, and interviews with stakeholders.

The case for mandatory ecodesign standards

The European Union (EU) and various nations are currently developing strategies to promote resource efficiency and address resource security issues. Potential policies include amendments to existing waste and recycling policies, as well as the design of new instruments. Among the policy proposals are: a more progressive use of taxes and charges; more focus on “resource use” issues in eco-labelling and public procurement, and international cooperation on the use and sharing of resources. As especially the policies applying economic instruments are difficult to implement due to political resistance, then some Directorate General in EU and national policy-makers have an interest in ecodesign standards that enable resource efficiency requirements.

An obvious choice of policy instrument at the EU level is the Ecodesign Directive. The Directive has been in place since 2005, and currently a lot of institutional learning is taking place on how to regulate the ecodesign characteristics of products. Most implementing measures set under the Ecodesign Directive so far regulate energy efficiency during the use phase. Several current trends however provide arguments for addressing resource related issues in the future, including:



- The life spans of many product groups – such as mobile phones, TV and laptops – are becoming shorter. Improving recycling of materials and resources will be more and more important, both in order to promote resource efficiency and to avoid the waste of embedded energy in materials and components;
- Due to the already implemented regulations, energy consumption in the use phase will be less important to address in the future, and the environmental impacts from the choice of materials and the manufacturing process will become more and more important.
- The economic feasibility of take-back and recycling for new types of materials, such as rare earth elements, is likely to increase. The design of products put on the market now will influence the cost-effectiveness of recycling the products in the future;
- Certain types of criteria, such as obligations to use percentages of recycled material in new products, can help to kick-start new markets for recycled materials and trigger technological innovations;
- Extending product lifetime via modular design, product service and maintenance, leasing systems, etc. are examples of new business models that facilitate resource efficiency.

Potential legal requirements

Recent reports and case studies have outlined different types of legal obligations related to resource efficiency that may be set under the Ecodesign Directive in the future. These include requirements that increase product durability; modular design to facilitate repair and upgrade; ban the mixing of certain materials in the product design; ban substances in order to improve recycling options; undertake cost efficient design measures to enable future recycling; provide information about certain critical materials and where they are placed in the product; longer guarantees provided to consumers; the setting of maximum time limits allowed for disassembly; requirements on proof that ecodesign was considered during the design process, and requirements on percentages of recycled content in every new product.

Studies by the Joint Research Centre (JRC) show that new types of environmental requirements related to resources and toxic content can make both economic and environmental sense. Some requirements can be measured with existing standards, tools and calculation methods, whereas some may require the development of new methods, standards, etc. The compliance problems do not seem to be insurmountable since resource efficiency criteria can be found in eco-labels for many product groups. A weakness is however that no detailed analyses of the costs and benefits of proposed IMs are made in any of the studies.

Learning from other policy instruments

Our review of different policy instruments showed that many different requirements on resource efficiency already exist in the Eco-labels, EU Green Public Procurement (GPP) practices, and the business driven scheme EPEAT. In other words, requirements on resource efficiency are already today agreed upon and implemented in various voluntary policy instruments. Hence, if resource criteria can be formulated, implemented and monitored in relation to voluntary policy instruments such as the EU Eco-label and GPP, then requirements related to resource efficiency in the Ecodesign Directive should also be feasible. In principle, the monitoring and validation tasks are not that different in voluntary and mandatory policy instruments, respectively.

Still, the basic aim of the mandatory and voluntary policy instruments should be kept in mind. The voluntary instruments are targeting front-runner enterprises whose products have a good environmental performance, while the Implementing measures in the Eco-design directive are targeting all products produced in or imported to the EU. In that sense, the resource efficiency criteria in the Eco-labels can function as a learning platform for how to set mandatory requirements related to resource efficiency through the Eco-design directive.

Advantages and disadvantages with addressing resource issues through the Eco-design Directive

The main *benefits* of using the Directive to address resource issues are:

- The Directive offers a “difficult but feasible” way forward whereas many other policies – such as the progressive use of taxes and charges – are less likely to be politically acceptable;
- Product design is of strategic relevance for future recycling options: for some types of materials, the potential for cost-effective recycling in the future may be influenced by product design now. Further, information can be provided to future recyclers about where materials can be found in the product;
- Requirements set through the Ecodesign Directive will unlike taxes not necessarily put EU manufacturers at a competitive disadvantage, because they apply equally to all products at the EU market;
- Other policies have not been able to stimulate progressive supply chain efforts. There are expectations among stakeholders that the Ecodesign Directive could be “the pioneer instrument” for driving supply chain measures, paving the way for other instruments. Requirements related to information, recycled content, materials declarations etc. could trigger supply chain initiatives;



- A potential advantage with using legal requirements is the “extra-territorial effects” of EU product laws; other jurisdictions often implement similar policies.

Public interventions are needed to make progress on resource efficiency: we cannot rely only on voluntary initiatives, since this will take too long time, before all products have an improved minimum performance.

However, potential *problems* associated with addressing resources through the Directive are:

- There are significant delays in in the process for setting energy-related ecodesign requirements, for several product groups. More focus on resource requirements could stall the process even further. The counter-argument is that the inclusion of resource issues could actually lead to improvements, for instance as it holds the potential to improve coordination within the Commission, and improve the quality of the preparatory studies;
- By setting requirements related to resources and materials, there is risk of putting restrictions on innovation and/or increase costs. This is an argument often used by industry. This argument is relevant, though research indicates that barriers to innovation mainly occur if ecodesign requirements are poorly designed;
- A common critique is that certain rules may pose trade barriers, and impose EU rules on other jurisdictions;
- Unknown chemicals in products are seen as barriers to recycling requirements, and requirements on recycled content. Several actors argue that we must have better knowledge about - and control over - the chemicals before we can mandate recycling of materials.

The chicken-and-egg dilemma

Substantial introduction of legal resource requirements thus have many potential benefits, but also potential disadvantage. Of special importance is the problem of further delaying the policy process, the potential risks to innovation processes, and the risks for competitive disadvantages to EU industries. It is however important to note that:

- Similar concerns have been voiced, when comparable EU regulatory reforms were launched (such as the WEEE and RoHS Directives). While the implementation of these policies has not always been smooth, and compliance is far from perfect, few actors now suggest we should scrap the regulations, and the environmental benefits are obvious. Thus, similar concerns are quite common whenever new policies are introduced.

- Addressing resources is a “chicken-and-egg” situation, when enacting new policies: some actors resist policies with the argument that methods for checking compliance are not in place. However, such methods will not be in place until new policies are implemented, as they cost money. In other words, we can hardly expect any indicator systems and means of compliance until we have set ecodesign requirements. Companies can only be expected to devote resources to set up supply chain initiatives to monitor materials streams, if binding rules are “drawing table”.

The role for the Eco-design Directive in a policy mix for resource efficiency

Regarding how the Ecodesign Directive currently interacts with other policies, and the potential for closer interlinkages in the future, some key points can be highlighted. As stated above, findings and learnings from resource related requirements used in procurement and labelling can be applied when setting legal standards. Further potential synergies between the Ecodesign Directive and other instruments are:

- *Energy labelling*: At the EU level, the Ecodesign Directive and the energy label is well coordinated, but for several products such as refrigerators, etc. the “worst” performing products allowed on the internal market comes with an A+ label from December 2013.
- *Eco-labelling*: The (lack of) coordination between the Ecodesign Directive and the EU eco-labelling schemes is problematic and needs to be improved. There is an obvious need to update and tighten some eco-labelling criteria. In other cases, eco-label criteria already include resource efficiency issues (e.g. recycled content) and can inspire resource-related requirements in the Ecodesign Directive.
- *Green public procurement (GPP)*: GPP and subsidy schemes mainly take place at the national level. Coordination appears to be limited. Procurement can stimulate innovation whereas legal requirements are setting a minimum level for all products. However, the preparatory studies could highlight best practices in industry and help provide benchmarks that can be applied in GPP processes.
- *The WEEE Directive*: There are recent ideas on how the Ecodesign Directive can complement the horizontal rules in the WEEE Directive, through setting requirements related to maximum disassembly time, or rules for toxic substances that are a barrier for recycling practices.
- *The RoHS Directive and the REACH Regulation*: The Ecodesign Directive could complement the REACH/RoHS rules through setting additional rules for chemicals for certain product groups, when required in order to stimulate recycling and contribute to cleaner materials streams. The Ecodesign Directive can also be used to



mandate information disclosure, in cases where bans are not considered appropriate.

- *The Waste Framework Directive (WFD)*: There are potential synergies between the Ecodesign Directive and the WFD, and other waste related rules. Most notably, the WFD standards for when waste is no longer considered waste might become increasingly important for development of requirements set through the Ecodesign Directive.

Rules related to trade and harmonization

Regarding rules in the WTO-administered agreements, the most prominent issue concerns the potential to regulate processing and production methods (PPMs), i.e. how a product is produced. Our legal analysis reveals that PPMs – and related information – cannot be regulated directly by the Directive. However, in some cases PPM information may be required in order to show compliance with product design rules. For instance, it may be possible to mandate information to prove that a product contains a certain percentage of recycled content.

A main concern is related to the text of the Ecodesign Directive and especially Art. 15(2) and its criteria related to “*significant environmental impact within the Community*” and “*significant potential for improvement without entailing excessive costs*”. It is not clear how these wordings should be interpreted, especially in relation to resource use issues. In any case, some resource requirements that have a significant environmental potential would probably be allowed even if the legal text is interpreted in a “reductionist” way. Several potential requirements that would boost recycling could probably be warranted.

A problem concerns rules set now that will boost recycling in the future. Even if producers can make design alterations at low cost today to allow more cost-efficient recycling in the future, it is not clear if this is allowed under Art. 15, unless studies show the impacts are potentially significant. If the scope for legal measures is restricted, the potential for strategic policymaking is clearly limited: we may continue to put products on the market, which will be difficult to recycle in a cost effective way.

The link to competitiveness

New types of requirements set through the Ecodesign Directive may have both a positive and a negative impact on the competitiveness of European enterprises. Potential links include:

- Policies can boost resource efficiency and related closed loops, and open up new material supplies through improved recycling that can

secure the access to certain materials at more reasonable prices for European industries, at least in the long run;

- There is potential for policies and regulations to trigger new business models and eco-innovations that can extend the product life time or secure a more efficient use of it;
- Product regulations and standards tend to be more positively correlated to improved competitiveness than process oriented requirements. Product requirements may increase the costs for manufacturers in the short term, but may induce investments that pay off in the longer term. As many countries tend to follow EU product rules there are potential first-mover advantages involved for European enterprises.

Interviews with policymakers and corporations

Semi-structured interviews with policymakers and representatives from industry were made in the project. Virtually all policymakers saw a potential to address resource efficiency through the Directive, but there were diverging views regarding how difficult this would be. Some actors saw a need to develop more indicators on resource use/efficiency before this would be possible, whereas others considered it possible to set requirements in the near future.

Clearly, addressing recyclability in various ways appeared to be the aspect with the highest acceptance. Some interviewees stressed that we need to have a better idea on what type of resource issues are best addressed within the scope of the Ecodesign Directive, and which ones are to be addressed by other instruments. Several policymakers made the point that accepted, and most important, measurable indicators must be available in order to allow the setting of requirements.

The interviews with industry representatives provided interesting insights and opinions, such as:

- The types of requirements that can/should be put on products vary a lot depending on product groups, as characteristics such as user patterns, and type of business (e.g. B2B or C2C) are of importance;
- Among potential requirements considered acceptable by interviewees were: durability (if proven by technical documentation); removing certain substances (to improve recycling); undertake cost effective design measures to improve future recycling (this could include the banning of certain types of design – such as plastic coating – if other designs exist and do not impose high additional costs); provide information about certain critical materials (e.g. REEs) and where they are placed in the product.



- Requirements in REACH/RoHS and US laws on conflict minerals have meant that there are now information formats that provide the foundation for requirements that track materials.
- Recycled content: it may be difficult to have different systems for monitoring and handling virgin materials as compared to recycled materials, which have implications for the possibilities to prove that products are compliant.
- The Ecodesign Directive cannot be “the” main driver for resource efficiency and improved recycling, but it may help to push developments in some product groups.

The way current systems for collection and recycling are set under extended producer responsibility (EPR) directives was seen as a barrier. Several interviewees were clearly in favour of promoting individual producer responsibility (IPR), where producers have the possibility to take-back their own products. Today, this is often not possible with the way collection and recycling systems are set up. If the producer cannot take back its own products when they become waste, the producer does not get any benefits from a better design, even if this will lead to socio-economic benefits. Thus, incentives for ‘design for recycling’ are limited.

Recommendations for EU policy development

The overall conclusion is that there is reason to work more coherently with resource efficiency requirements under the Ecodesign Directive, but to “advance slowly” to avoid setbacks.

Potential short-term actions include:

- *Consider new types of requirements:* According to industry representatives, certain types of requirements are more acceptable than others. The preparatory studies could review the potential for such requirements. The consultants should be demanded to propose new types of requirements, even if not all can be applied in the final implementing measures. Benchmarks – e.g. review of the best performers on the market – should be part of the studies, and more measures should be taken at the EU level to ensure that benchmarks are considered in the application of other instruments like GPP. There are reasons to look at e.g. durability requirements for product groups, where technological change is slow. Further, requirements on percentages of recycled content in new products have been applied in eco-labelling schemes, and some producers also use recycled content in their ‘green range’ series, so exploring the feasibility of such requirements should be done on a product group basis.
- Regarding *information requirements*, it may be relevant to examine:

- If manufacturers should account for critical materials and components.
- If manufacturers should inform about, where these materials are found in the product to enable future cost-efficient recycling.
- If certain design solutions (e.g. coatings and material mixes) should not be allowed as they may impede future recycling.
- *Methodologies must be developed:* The MEErP methodology has begun to deal with issues such as critical materials. The methodology needs to deal with the problems associated with the “system orientation”, and for better policy coordination at the EU level. There is also a need to promote the development of relevant standards in industry-driven standardization, related to monitoring and measurement of recycled content and other relevant parameters.
- *Chemicals in components and materials:* Chemicals that is or can be a barrier to recycling should be assessed in all consultancy studies.
- *Rules now to enable recycling later:* There could be reason to already set rules now that would allow for cheaper recycling in the future. Such rules may relate e.g. to material declarations, or banning plastic coatings, to better allow for cost-efficient future recycling.

A main concern is that the political acceptability of some types of rules is low, and that all industries may not be able to comply. These issues can be addressed through different strategies, such as the setting of long-term targets with several tiers of requirements. This gives industry sufficient time to adopt practices and set up systems for information, finding suppliers of recycled materials and so forth. Some industries and member states may be reluctant because of concerns that some industries cannot comply. The introduction of checkpoints, where requirements can be made more or less progressive due to market and technological developments, could partly solve this dilemma.

Potential long-term actions include:

- *Make use of new instruments to promote resource efficiency:* Some instruments are hardly discussed at the EU level. For instance, technology procurement has a good track record in the US and Sweden, and is an obvious complement to the Ecodesign Directive.
- *The wording of the Ecodesign Directive:* It seems as if the wording of the Directive, most notably Art. 15 may impede the setting of some strategic requirements that may enable better recycling in the future. If so, a change in the wording should be considered.

Among *complementary actions* we can identify:

- Establish pilot projects and research to examine the potential to cost-effectively recycle critical materials like REEs.
- Establish research in new materials and better design.



- Review the need for (European) standardization to contribute to new requirements through timely introduction of dynamic standards. This process has already been initiated.

Recommendations for Nordic policymakers

Resource related ecodesign obligations will be a necessary part of the future policy mix, though not all parts of the policy puzzle is yet in place. The Nordic policymakers can make sure the momentum is not lost and can begin processes in order to realise strategic opportunities. Examples of such policies would be to continue the development of resource efficiency criteria in the Nordic eco-labelling and public procurement in order to pave the way for an uptake in EU eco-labelling and in the Ecodesign Directive. By continuously developing resource related criteria in voluntary policy instruments such as procurement, eco-labelling and standardisation, a platform for legal standard setting will be created that can be applied for ecodesign. An outline of these resource requirements already exist in the studies conducted by JRC and in some criteria for eco-labelling, and a closer evaluation of these experience can be a way ahead for developing resource criteria for other product groups.

Future research could also investigate the relations between product requirements on the one side and functional and system requirements on the other side. For instance, minimum energy performance requirements for pumps are important to improve energy efficiency, but it is important to make sure that that the right pump for the task at hand task is chosen. This can be ensured through requirements related to energy audits, and requirements in national building codes.

For products with a long product life cycle, further research has to investigate how sustainable business models can secure an efficient use, and also consider how regulations can be made now in order to increase the chances for future resource recovery.

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*This survey and policy brief was financed by Nordic Council of Ministers,
the Working Group for Sustainable Consumption and Production SCP*