

***Framework Service Contract for the Procurement
of Studies and other Supporting Services on
Commission Impact Assessments and Evaluations
Interim, final and ex-post evaluations of policies,
programmes and other activities***

Evaluation of the Ecodesign Directive (2009/125/EC) Draft Final Report

December 2011



Centre for
**Strategy & Evaluation
Services**



P O Box 159
Sevenoaks
Kent TN14 5WT
United Kingdom
www.cses.co.uk

Disclaimer:

This report contains the results of independent research by the evaluation team (CSES and its partners). It expresses the views of the team and should not be perceived as expressing the opinion of the European Commission.

The European Commission is not responsible for any use that may be made of the information and the project team does not accept any liability for any direct or indirect damage resulting from the use of this report or its content.

Executive summary

EXECUTIVE SUMMARY

The basic objective of the evaluation study has been to assess the relevance, effectiveness, efficiency and European added-value of the Ecodesign Directive (2009/125/EC) at this stage. The assessment has been based on the analysis of the most recent data publicly available and the input from a wide range of stakeholders.

A second objective has been to consider the appropriateness and feasibility of extending the Ecodesign Directive to non-Energy related products (non-ErPs) and Means of Transport. Although the scope of the exercise has not allowed the sort of detailed analysis undertaken in studies to develop the Working Plan, consideration of product groups and specific products has allowed issues likely to arise with any extension to be explored. It should be stressed, however, that the analysis is not sufficient to select specific product categories for a future Ecodesign Working Plan under the assumption of an extension of the product scope beyond ErPs. This would require an additional specific study.

The evaluation is in response to Article 21 of the 2009/125/EC Ecodesign Directive that requires the Commission to review the effectiveness of the Directive and of its Implementing Measures, with a view to a revision, if necessary, that would amend the Directive's provisions and increase its effectiveness.

It has been conducted in line with the standard evaluation methodology employed by the European Commission, focusing on a series of evaluation questions designed to assist judgement of the Directive against clear evaluation criteria. A particular feature, however, of this evaluation has been the development of the report with staged inputs from the stakeholder community, notably centring on a series of three stakeholder meetings open to any interested party that have considered successive drafts of a document that makes up the report. In addition to direct input at these meetings, the evaluation team in addressing the key questions of the evaluation have relied on an on-line survey, material submitted by stakeholders, an interview programme with Commission and Member State officials, representatives of industry and environmental NGOs and extensive review of relevant literature and data sources.

The evaluation team has found the open spirit of Ecodesign procedures to be extremely valuable in testing and challenging propositions that appeared to be emerging from the earlier analysis. The team is very grateful for the helpful assistance of many stakeholders in providing comment and evidence directly relating to the issues under consideration.

There have, however, been a number of important limitations in the extent to which a final evaluation could be conducted. Firstly, there is the timing of the evaluation. Implementing Measures for 9 product groups were only brought into force towards the end of 2008 or in 2009, following a phased introduction of measures and a step-by-step strengthening of the minimum requirements. Only one product group has progressed beyond the first set of requirements. For three more products, the Implementing Measures came into force during the last year. There are also considerable data problems, not least because **data** from official statistical sources are at least 2-3 years old and, as a result, tend to relate to the period before the Implementing Measures were adopted.

Relevance of the Ecodesign in relation to policy objectives – Coherence with other policy tools

It is important, for the evaluation as a whole, and for an assessment of its continuing relevance, to be clear about the policy context in which the Ecodesign Directive was proposed, the implications of its legal basis and the nature of its interaction with other policy instruments.

Executive summary

From the adoption of the initial legislation on Energy-using Products¹ in 2005, the Ecodesign Directive has operated as part of a wider range of EU policies. The Commission Communication on Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (SCP/SIP) of 2008 sought to provide an integrated approach and an Action Plan for sustainable industrial policy. It provides the policy framework for the Ecodesign Directive, which is intended to operate in conjunction with a series of other policy instruments, notably the Energy Labelling Directive, the European Eco-label, Green Public Procurement and complementary regulatory instruments (principally the WEEE and RoHS Directives, the REACH and F-Gas Regulations and the Energy Performance of Buildings Directive).

Within this context, the evaluation team drew the following conclusions:

- **The Ecodesign Directive is well placed as a policy instrument within the context defined by the SCP/SIP Action Plan and broader European Union policy commitments.** The main purpose of removing the worst performing products from the market is appropriate and this is a view shared by the great majority of stakeholders.
- The **relative focus on energy efficiency** issues since 2005 resulted from various factors, notably the product scope of the 2005 Directive (energy using products) and policy choices by the European Union on the basis of technical analysis by preparatory studies and available data.
- For some Implementing Measures already adopted (for example, televisions), there may have been non-energy parameters of products that have not been regulated as a result of the product scope and policy choices on the basis of the underlying technical analysis.
- There are products still under consideration, where some evidence is cited² that identifies **possible non-energy in use improvements**. Initial analysis suggests that some may qualify for Ecodesign Implementing Measures against the criteria of Article 15 of the Framework Directive³. In others, improvements would be better achieved through other pieces of EU legislation.
- In general, the **implementation of the Ecodesign Directive is effectively linked with Energy Labelling, a key tool in the SCP/SIP Action Plan**, but the coordination with Green Public Procurement (GPP) and the European Eco-label scheme has not been as strong. Current proposals may strengthen the link with GPP, at least as far as energy is concerned, and this could be reinforced by greater coordination and information exchange among the different units of the Commission.
- The **interface with related legislation, such as the WEEE, RoHS, EPBD Directives or CPR, will continue to be a challenge** A **guidance document based on recent experience could be formulated** to establish how this and other issues can be best resolved.

¹ Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of eco-design requirements for energy-using products

² Global View Sustainability Services Ltd, Fraunhofer IZM and Collingwood Environmental Planning 'Review of EuP Preparatory Study Evidence: Does it support development of non-energy related Implementing Measures?' May 2011;

³ Article 15.5 of the Directive stipulates that the following conditions for Implementing Measures : no significant negative impact on the functionality of the product, from the perspective of the user; no adverse effect on health, safety and the environment; no significant negative impact on consumers (especially affordability and life cycle cost); no significant negative impact on industry's competitiveness; no imposing of proprietary technology on manufacturers; and no excessive administrative burden.

Executive summary

Effectiveness of the Ecodesign Directive and Implementing Measures

Most Implementing Measures were only recently introduced and Tier-2 requirements have yet to enter into force in most cases. In addition, for most EuPs recent data are missing. Given these limitations, the analysis of the available evidence leads to the following key conclusions:

- The introduction of Implementing Measures has had a **positive and direct impact on energy efficiency in the case of domestic and tertiary lighting**, mainly related to the ban of incandescent lamps. They also had an indirect role in the energy efficiency improvements in relation to **stand-by and off mode** and to a lesser extent to **circulators in buildings** through increasing attention and supporting industry initiatives. It should also be expected to have a substantial role in changes in the case of **electric motors**.
- In the **case of televisions, domestic cold appliances, domestic washing machines and dishwashers**, there have been **important developments in the market in the direction of products with increased energy efficiency but available evidence does not allow this market evolution to be directly attributed to the Implementing Measures**. They may have contributed by amplifying existing trends. Future requirements for domestic washing machines, dishwashers and domestic cold appliances are expected to contribute more to the increased energy efficiency of appliances while this is not expected to be the case for televisions, where requirements are at a lower level than many products already on the market⁴.
- There are **no data available at this stage to assess the role of the Directive in the case of battery chargers and simple set-top boxes**.
- Ex-ante impact assessments estimated that the first 12 Ecodesign Regulations will allow savings of 385TWh per year by 2020, which is close to 14% of EU 2009 electricity consumption by households. However, it is **not possible to assess progress against these estimated energy savings and consequently the 2020 policy targets** at this stage **due to data unavailability**. Significant energy efficiency improvements and energy savings are possible in most categories of EuPs.
- There is **no evidence of a negative impact on the prices of EuPs examined**. The data indicate a decline in the price of energy efficient EuPs, continuing earlier trends. These findings are also in agreement with the conclusions from studies in other regions (U.S.A, Japan, and Australia).
- There is no consistent picture in terms of the costs to industry. There are examples where the costs have been rather substantial but **in general industry does not seem to consider that Ecodesign has introduced excessive additional costs**. The significant lead time provided before the introduction of the demanding Tier 2 requirements allows industry to integrate production changes into the product design cycle of most firms.
- Administrative and testing costs are a greater burden for SMEs than for large firms – in relative terms – but this does not appear to be different from other comparable EU legislation.
- The study has **not identified any other adverse effects on the operation of the markets** and the distribution of market power along the supply chain.
- The implementation of the Directive has, in general, a **positive role in the adoption of existing innovative technologies and the promotion of innovation (although this is not an explicit objective)**. A key element is that the Directive and the relevant Implementing Measures provide

⁴ This is due to the fact that the Ecodesign Implementing Measures on TVs was based on market data which rapidly turned to be outdated due to quick evolution on the TV market and limited information available at that time of the expected uptake of LED based technology by industry. As a result, the Ecodesign requirements set by the TV Regulation were less stringent than what the market could actually have achieved

Executive summary

the necessary framework conditions, a clear timetable and legal certainty to support the operation of a competitive market.

- So far, the identification of advanced benchmarks in the Implementing Measures appears to have had a limited effect. Their role in promoting best available technologies and innovation should be strengthened.

Efficiency of procedures

After considering evidence on the effects of the Directive, there follows a section looking at various aspects of the efficiency of the processes leading up to Implementing Measures and of the actual implementation and enforcement of the Directive

- There are **no problems in principle in relation to the criteria for the selection of products** to be covered under the Ecodesign Directive. Although there are criticisms concerning certain aspects of the MEEuP methodology and the EcoReport tool, the **MEEuP has served its main purpose in the identification of the significant environmental aspects and the relevant requirements to be set**. A revision of the methodology has been the subject of a parallel study and is expected to improve a number of aspects.
- Good quality research at an early stage to produce extensive and detailed Working Plans and preparatory studies can **save time and expense** for everyone subsequently.
- **The procedure for the development of the Implementing Measures is rather lengthy**. On average it has lasted around 4 years so far, but this does not include cases still under consideration and there is a tendency for the process to stretch out to six years. A major part of the delay is attributable to the limited resources available inside the Commission.
- **There is a need for better synchronisation between the development process for Implementing Measures and that of measurement and test standards**. The recent horizontal mandate to the standardisation bodies is a positive development in this direction.
- The **delays in the development of an Implementing Measure** for boilers and water heaters have led to a missed opportunity in terms of energy savings. These products are by far the EuPs associated with the greatest levels of energy consumption.
- More generally speaking, if requirements are based on preparatory study data that are outdated at the time when the Implementing Measures enter into application, then adopted requirements do not reflect **recent market trends and technological developments** and may be less stringent than what the market could actually achieve.
- The **inadequacy of Commission resources** for participation in implementing processes is clearly a major cause of delay and a very significant constraint on the whole Ecodesign system. By way of comparison, staffing levels in the USA are in the region of 10 times the number of desk officers in the Commission. Even in China, there are about 70 staff and more than 40 product regulations. There is a similar disparity in terms of resources devoted to the necessary studies.
- **Market surveillance and enforcement is an area of some concern**, posing a threat to the credibility of legislative framework and undermining the efforts of industry. Growing evidence indicates that the level of non-compliance is in the range of 10-20%. It is widely believed that most Member States have not dedicated the necessary resources for effective monitoring and enforcement. Nonetheless, there are steps that can be taken without great expense to improve surveillance and compliance and the Commission could assist with coordination and information exchange.
- **The introduction of a requirement for on-line registration of all new models**, as is the case in the corresponding US and Australian energy efficiency programmes should be seriously

Executive summary

considered for future Implementing Measures and revisions. It can contribute to improving market surveillance, market monitoring and the review of the effectiveness of the Implementing Measures.

- **The analysis of the cost-effectiveness of the Directive indicates potentially a very high benefit to cost ratio.** The expected savings for the period 2005-2020 are estimated in the range of €90-120 billion while the costs of implementation for the Commission and Member States for the same period in the range of €220-280 million. There is, as a result, **clear scope for investing more resources in order to improve the implementation and the level of compliance.**
- Although initially proposed for televisions, generic requirements on specific environmental parameters combined with performance standards have not been used so far. This is a key aspect of the Ecodesign Directive that should be considered in future Implementing Measures and reviews of Regulations.
- **There is no experience at this point to assess the effectiveness of Voluntary Agreements.** The difficulties in arriving at agreements suggest that this route does not necessarily provide an easier process than regulation. They do however provide several benefits, such as allowing creative approaches to complex technical issues and a mechanism to monitor market developments which is missing from Implementing Measures.

Extension of the Directive

The evaluation considered the appropriateness and feasibility of extending the Ecodesign Directive to non-Energy related products (non-ErPs) and Means of Transport. Following the conduct of five case studies on selected representative products and an analysis of the potential implications for the existing Ecodesign Directive the following conclusions were reached:

- **The introduction of Ecodesign based requirements can, in theory, bring substantial environmental improvements for several non-ErPs.** However, in contrast to ErPs, for a large number of non-ErPs the main environmental impacts are related to the initial stages of the life cycle. Among the products considered, this is particularly the case for food products, clothing and certain floor coverings. Ecodesign requirements can be expected to bring substantial improvements to these categories of products provided that they effectively target the inputs and processes used for the production of these products and contribute to the greening of their supply chain.
- However, for some of these products there are important **feasibility considerations relating to the absence of the necessary measurement and testing methods to support the adoption and implementation of mandatory requirements.** In the case of food products existing work is still far from providing the necessary basis for either generic or specific requirements. In other cases, such as household chemicals or furniture, eco-design requirements could be easier to establish and implement.
- The second difficulty for many non-ErPs is that **conformity assessment would have to rely on documentation in the form certification or declaration schemes** rather than testing the product itself. Such an approach is permitted by the Ecodesign Directive 2009/125/EC and a few voluntary schemes already exist to facilitate such demonstration of conformity but there is no precedent of such certification or declaration schemes used in combination with mandatory requirements for placing on the market. In addition, **this approach would risk introducing substantial administrative costs for industry and high risk of non-compliance**, especially in the case of products with global supply chains, fragmented markets (e.g. many food products, clothing) and with a large share of SMEs.

Executive summary

- **Means of transport should not be considered as priority targets for an extension** given the existing relevant legislation covering the most important environmental aspects.
- In the case of a possible extension, the products that appear to be of higher priority or potential if there is to be an extension, include chemical products like detergents and all-purpose cleaners, furniture and mattresses and, depending on the specific type, toys. These products represent only a small share of the total environmental impact of non-Energy related products.
- **With similar levels of funding to that available currently, an extension of the Ecodesign Directive's scope could have a negative impact on the implementation of the current Directive. Unless significant additional resources are made available, an extension may risk obstructing a process that is demanding and complicated, and where there is already a backlog. This would risk creating uncertainty for industry and may be counter-productive.**
- **Voluntary initiatives within the context of the Ecodesign Directive may often provide similarly effective but more flexible and less costly solutions for some categories of non-ErPs products, including all purpose cleaners and detergents. Whenever available they should be considered and promoted, at least as a short to medium term option.**

Recommendations

The principle recommendations of the report are as follows:

- The European Union has chosen to have a sustainable development policy on products that addresses all the major environmental challenges together. Furthermore the EU's sustainable industrial policy aims to implement this vision in an integrated approach, in which a series of policy instruments are brought to bear in a co-ordinated way. **In principle, therefore, extension of the Ecodesign Directive to cover non-energy related goods is necessary** to make available a very important instrument for sustainable development policy.
- However, if the extension of the Directive is not to be an empty gesture, **it should be ensured that implementation and enforcement of legal requirements is feasible, practicable and cost-effective.** Among other issues, resources must move to something that is more commensurate with the resources that are available in the United States and elsewhere.
- Guiding the actual development of an Ecodesign programme of legislation, **the authorities must reaffirm the principle that industry has to be provided with maximum certainty and clarity.** Otherwise use of the Ecodesign policy instrument can actually be counter-productive and inhibit enterprises from undertaking the necessary developments, at least in the short to medium term.
- Application of this principle requires a series of improvements to **clear the backlog** of Implementing Measures for Energy-using Products and ensure that those for energy-related goods are adopted with the minimum delay. This will not be possible without some additional resources. If these resources cannot be provided ambitions should be set at a more modest level.
- A series of **improvements need to be made in the processes by which Implementing Measures are developed**, including more extensive initial studies, setting timeframes for the completion of each Implementing Measure and the codifying of experience. A dedicated portal should explain and provide on-line access to all the developments taking place under the Ecodesign Directive
- Special provision should be made for cases involving particularly **complex products or systems.** This would involve identification of such cases in the Working Plan, and additional provision within preparatory or special studies, in order to design the best regulatory solution, which may be entirely under the Ecodesign Directive or within a different regulatory framework, but possibly including Ecodesign elements.

Executive summary

- Further consideration should be given to creating a **dedicated institutional framework, such as an executive agency** or an extended remit for the JRC, to capture and embody the technical, market and institutional experience of particular Implementing Measures and to monitor market developments in order to support the development of future Measures. The case for this development becomes even stronger, if an extension of the coverage of the Directive is to be proposed.
- In order to further address wider environmental issues than energy such as recyclability of products, both under the current legislation and in any extension, it is imperative that **better metrics** are developed.
- The **collection of data was a function identified by SCP/SIP as critical to the overall strategy**, but European data requirements are relatively relaxed and there is no central driver of developments in this area. Data requirements should be an enhanced feature of preparatory studies and Implementing Measures and responsibility for developing the data foundation for policy in this area and for monitoring market developments could be one of the functions of the suggested dedicated institution.
- **Effective enforcement** is essential for the credibility of the whole system and to avoid undermining the efforts of enterprises committed to the spirit of the legislation. Surveillance authorities need to be more transparent across the range of their activities. And take a series of measures to increase the effectiveness of their activities.
- A review and comparison of penalties imposed by Member States should be undertaken and kept up to date.
- The analysis does not seem to support a decision for the extension of the Directive at this point. However, any decision by policy makers should be based on a thorough cost-benefit analysis, considering in particular whether other pieces of EU legislation would be more effective in reducing the environmental impacts of non ErPs.
- Industry-wide voluntary initiatives targeting the development of the ecological profile of non-ErPs and the adoption of eco-design practices should be further promoted. They have the potential for bringing sizeable environmental improvements with fewer costs. At the same time, they can help streamline and harmonise the existing practices, increase the use and reduce the cost of using chain of custody or certification schemes.

More detailed areas for action are set out in the full text.