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Introduction

The regulatory context surrounding eco-design implementation has been steadily evolving over the last 15 – 20 years. In this document we present the main steps of this evolution and the core directives related to eco-design. This document includes a non-exhaustive description of existing eco-design standards, as well as the existing political stakeholders that can influence a company's implementation of eco-design. This legislative summary provides an overview of the current European regulatory context related to eco-design, and it suitable for all organisations operating within the EU. Links to further readings on this subject is available at the end of the document.

Regulatory Context for Eco-Design in Europe

Evolution of the Environmental Regulation Context in Europe

The European Union began developing eco-design regulation and legislation in the eco-design area in the 1990's. The first European directives were developed to optimise the energy efficiency of electric and electronic appliances such as refrigerators, hot-water boilers, ballasts for fluorescent lighting sources etc. At the beginning of 2000, the European Commission developed and proposed a reinforcement strategy in terms of environmental policy through a Green Paper, to encourage the development of a "green market" in Europe. This proposition included for example some recommendations for the use of the LCA methodology in the development of products and a strategy for the integration of the environment in design processes.

Since then, the European Union has legislated in order to promote the production of "sustainable" products in Europe. These legislations restrict for example the use of some substances in different typologies of products or impose the integration of end of life criteria in the design process.

Current European Regulatory Framework

Current environmental European legislation is focussed on the implementation of the Extended Producer Responsibility principle. Since 2005, the WEEE directive put this principle in concrete terms and allocates responsibility to producers and other stakeholders involved in the lifecycle of electric and electronic products. The RoHS Directive implemented in 2006 set restrictions upon European manufacturers for the material content of new electronic equipment placed on the market. Other directives, such as the Packaging and Packaging Waste Directive (94/62/EC set for the first time in 1992), established some measures with the aim of reducing the environmental impacts related to packaging and packaging waste. Table 1 summarizes the main environmental legislation related to eco-design.

Name	Type	Implementation	Definition & Main objectives	Example of action measures in companies
REACH	Regulation	Jan. 2004	<p>REACH: Registration, Evaluation and Authorization of Chemicals Regulation</p> <p>Obj: To decrease the risks linked to the use of chemicals during production. Homogenization of regulations on chemicals management in EU. Establishment of a European Chemicals Agency for the control of the use of chemicals in Europe.</p>	<ul style="list-style-type: none"> - Create a comprehensive inventory of all substances that come into and out of a company - Global audit of suppliers - Check the conformity of materials and products - Provide data on the use of, and exposure to, chemical substances to customers
WEEE	Directive	Aug. 2005 Jan. 2007	<p>WEEE: Waste Electrical and Electronic Equipment Directive</p> <p>Obj: To set collection, recycling and recovery targets for all types of electrical goods in Europe. The</p>	<ul style="list-style-type: none"> - Financing the treatment of the Electrical and Electronic Equipment put on the market - Measures can be set to reduce the eco-tax imposed on customers for

			producer of electrical goods has to finance the collection and treatment of their products.	the end-of-life processing of the product (e.g. minimizing waste at EoL through use of a universal charger)
RoHS	Directive	Jul. 2006	<p>RoHS: Restriction of Hazardous Substance directive</p> <p>Obj: Restrict the use of 6 Hazardous substances (<i>Lead, Mercury, Cadmium, Chromium (VI), PBB(s), PBDE(s)</i>) in the manufacture of various types of electronic and electrical equipment. It is closely linked with the Waste Electrical and Electronic Equipment Directive (WEEE).</p>	<ul style="list-style-type: none"> - Check the conformity of materials - Redesign of the product if necessary - Check the conformity of suppliers - Creation of a material database that conforms to RoHS
EuP → ErP	Directive	Jul. 2005 Nov. 2009	<p>ErP: Energy Related Product directive</p> <p>Obj: Establishment of a framework for setting eco-design requirements for energy related products. Provides rules for improving the environmental performance of ErP</p>	<ul style="list-style-type: none"> - Find the best available technologies in terms of energy performances on the market related to the concerned product - Integration of these technical aspects in the design process - Set management system for assessing conformity of the product to ErP directive ...

Table 1: Summary of the main Current environmental European legislation related to eco-design

In 2009, the Eco-design directive (ErP directive) was established to provide some rules for the improvement of the environmental performance of energy related products (ERPs) and energy using products. This directive has been set out in order to prevent disparate national legislations between European governments on the environmental performance of these products from becoming obstacles to the intra-EU trade. Its scope currently covers more than 40 product groups (such as boilers, light bulbs, TVs and fridges), which are responsible for around 40% of all EU greenhouse gas emissions.

As a summary, Figure 1 shows the influence of the main environmental directives and regulations identified on the different life cycle phases of the products put today on the European Market.



Figure 1 : Link with current European Environmental Legislation and the life cycle of a product [3]

Existing Standards Related to Eco-Design

The Eco-design methodology has been subject to an international standardization procedure, with the creation of standard ISO14062. This standard has been developed for designers and products developers in order to give them a procedure for the implementation of environmental parameters in the design process of their products. The ISO 14062 standard gives key elements for developing the eco-design strategy at each step of the design process (planning phase, conceptual design, detailed design, prototyping, manufacturing, project review)

Other important standards related to eco-design are presented in Table 2 (this list is not an exhaustive list).

Standards N°	Title	Publication date
ISO 14062	Environmental management -- Integrating environmental aspects into product design and development	2002
ISO 14045	Environmental management -- Eco-efficiency assessment of product systems -- Principles, requirements and guidelines	2012
ISO 14006	Environmental management systems -- Guidelines for incorporating Eco-design	2011
ISO 14040	Environmental management -- Life cycle assessment -- Principles and framework	2006
ISO 14044	Environmental management -- Life cycle assessment -- Requirements and guidelines	2006
ISO 14020	Environmental labels and declarations -- General principles	2000
ISO 14063	Environmental management -- Environmental communication -- Guidelines and examples	2006
IEC 62430	Environmentally Conscious Design of Electrical and Electronic Products and Systems	

Table 2: List of important existing standards closely related with eco-design

Other Political Pressures Related To Eco-Design

Besides the European Commission and the International Organization for Standardization, there are other types of political pressures in Europe that can lead producers to undertake an eco-design approach into their companies. Among them, we can cite the "Grenelle de l'environnement" in France. This was a political dialogue launched in 2007 that aimed to develop a new strategy for environmental protection and sustainable development. The Grenelle 2 (Law No. 2010-788 of 12 July 2010) details the requirements for providing environmental product information to consumers.

The development of environmental labelling is also creating completion around the environmental performance of consumer products, encouraging more companies to think about the environmental impacts of their products and begin to implement eco-design in their products design processes. Indeed this is one of the main drivers for our industrial partners in the G.EN.ESI project.

Other pressures as competitive pressure and consumer demand can also be influencing factors for the implementation of eco-design into a company.

Conclusion

This document provides an overview of the regulatory context for Eco-design in Europe. It is aimed at companies who are interested in the implementation of eco-design and therefore need to understand the regulatory and legislative context within which they will operate. It gives general information of the main directives and regulations related to this subject, and offers examples of the actions a company can take to contextualise this legislation. For more information please see the Further Reading section below.

Further Reading

On ErP directive:

- <http://eco3e.eu/regulations/erp-directive/>
- http://ec.europa.eu/enterprise/policies/sustainable-business/ecodesign/files/brochure_ecodesign_en.pdf

On REACH:

- http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm

On WEEE directive:

- http://ec.europa.eu/environment/waste/wEEE/index_en.htm



On RoHS:

- http://ec.europa.eu/environment/waste/rohs_eee/

Other regulations:

On End of life vehicles:

- http://europa.eu/legislation_summaries/environment/waste_management/l21225_en.htm

Packaging and packaging wastes:

- <http://ec.europa.eu/environment/waste/packaging/legis.htm>

On environmental label and declaration:

- <http://www.iso.org/iso/environmental-labelling.pdf>
- http://www.eceee.org/ecodesign/Energy_labelling_directive

