

The Eco-design Directive for Energy Using Products (2005/32/EC)

The EU Eco-design Directive was adopted in 2005¹. It establishes a framework under which manufacturers of energy-using products will, at the design stage, be obliged to reduce the energy consumption and other negative environmental impacts occurring throughout the product life cycle. The Directive makes provision for the introduction of so-called implementing measures, which can be minimum energy performance standards (MEPS) or other mechanisms.



It is generally acknowledged that a product's lifetime energy use is strongly influenced at the design phase. 'Eco-design' means that there will be a greater focus on lifetime energy use and other environmental aspects during the conception and design phases, before it is manufactured and brought to market.

The Eco-design Directive sets a framework for performance criteria which manufacturers must meet in order to legally bring their product to the market. It does not yet, however, prescribe specific measures or standards and sets no overall energy saving targets.

Detailed actions will be introduced by the European Commission following a process of discussion with key stakeholders and through what the Commission calls implementing measures. Once the Eco-design Directive becomes effective, manufacturers who begin marketing an energy using product covered by an implementing measure in the EU area will have to ensure that it conforms to the energy and environmental standards set out by the measure.

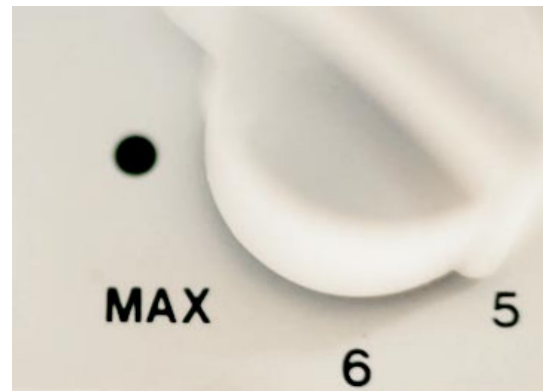
Since earlier Directives for minimum energy performance standards (MEPS) already contain efficiency requirements for certain products these are to be integrated into the Eco-design Directive framework and considered as the basis for implementing measures.

Existing requirements for product energy labelling (as well as for the voluntary EU eco-label) will continue to exist alongside the provisions set out in the Eco-design Directive. Energy labels are intended to provide consumers with energy and environmental information on which they can base a choice between products on the market.

All energy using products sold in the domestic, commercial and industrial sectors are potentially covered by the new Directive with the exception of all means of transport which are covered by other legislation. In practice, the implementing measures will focus on those products which have a high potential for reducing greenhouse gas emissions at low cost, through reduced energy demand.

Early candidates are likely to include heating and lighting equipment. The Directive makes a specific priority of the need to reduce stand-by losses in all energy using products. (Stand-by is when a product is connected to the mains without providing any useful service, such as a TV switched off with the remote control). Products on stand-by represent around 10% of all household electricity consumption.²

The Eco-design Directive resulted from the combination of DG (Directorate General) Enterprise's proposals for an EEE (Eco-design for Electrical & Electronic Equipment) Directive and proposals by DG Energy and Transport (DG-



TREN) for an EER (Energy Efficiency Requirements) Directive. These proposals were merged into one at the end of 2002. Both DGs jointly "own" the Directive, but in practice most of the energy-related work is managed by DG-TREN.

This combination of these initial objectives means that while the Directive's primary aim is to reduce energy use, it also enforces other environmental considerations including: materials use; water use; polluting emissions; waste issues and recyclability. It is estimated that over 80% of all product-related environmental impacts are determined during the design phase of a product.



Eco-design Directive – origins and related legislation

The European Commission regards energy saving as the most cost-effective way to increase security of energy supply and reduce the Union's dependence on energy imports. It is also a key element of the Community's strategy for achieving greenhouse gas targets, now ratified under the Kyoto Protocol, which are aimed at mitigating dangerous climate change. This aim is enshrined in the Sixth Community Environment Action Programme (2002).³

The over-riding priority of the European Union, however, is to create a single economic market allowing free movement of goods and services. The Commission aims, therefore, to eliminate disparities between the laws of Member States, which can create barriers to free trade and distort competition, and to encourage the development of common legal frameworks. Coherent EU-wide rules for eco-design are intended to ensure that disparities among national regulations do not become obstacles to intra-EU trade.

Energy efficiency has been a significant component of the EU's energy and related environment policy since the early 1990s and the evidence suggests that the Community's focus in this area is intensifying as both climate change and energy security issues rise to greater prominence.

The European Commission's over-arching strategy for reducing the environmental impacts caused throughout products' life-cycles is called Integrated Product Policy (IPP). IPP covers all stages, from extraction of natural resources, through their design, manufacture, assembly, marketing, distribution, sale and use, and to their final disposal as waste. The Commission plans to use a variety of tools - both voluntary and mandatory - to achieve the objective. These include measures such as economic instruments, substance bans, voluntary agreements, environmental labelling and product design guidelines. The Eco-design Directive is a concrete example of how the principles of the Integrated Product Policy are applied.

A broad range of products

The Eco-design Directive applies to all energy using products (except vehicles for transport) and covers all energy sources. Implementing measures potentially apply energy use and environmental standards to all energy using products sold in the EU, whether manufactured locally or imported.

Significant environmental aspects may take place in the following phases of the life cycle of the product:

- (a) raw material selection and use;
- (b) manufacturing;
- (c) packaging, transport, and distribution;
- (d) installation and maintenance;
- (e) use;
- (f) end-of-life, meaning the state of an EuP having reached the end of its first use until its final disposal.

For each life-cycle phase, the following environmental aspects should be assessed:

- (a) predicted consumption of materials, of energy and of other resources such as fresh water;
- (b) anticipated emissions to air, water or soil;
- (c) anticipated pollution through physical effects such as noise, vibration, radiation, electromagnetic fields;
- (d) expected generation of waste material;
- (e) possibilities for reuse, recycling and recovery of materials and/or of energy.

Three energy efficiency requirement directives (or minimum energy performance standards – MEPS)⁴ were introduced in 1992, 1996 and 2000. These defined minimum energy efficiency standards for hot-water boilers (92/42/EEC), fridges and freezers (96/57/EEC) and fluorescent ballasts (2000/55/EEC). These measures will be absorbed by the new Eco-design Directive. ●

The ecee position:

ecee remains concerned that the rate of efficiency improvement in the least energy efficient products will determine the pace of progress under the Eco-design Directive. Consequently, ecee considers it especially important that:

- In the next 2-3 years, specific requirements in the form of minimum energy performance standards should be introduced in areas such as boilers, halogen lighting, appliance stand-by energy consumption and transformer performance. (Transformers are widely used in electronic equipment, street lighting, electric motors, and cold and wet appliances).
- if it is to have any impact at all in the first Kyoto budget period (2008-2012), every care must be given to ensure that there is no slackening in the implementation timetable at both the EU level and by the Member States.
- Minimum energy performance standards should be dynamic and revised frequently.

- Minimum energy performance standards should be monitored for compliance.
- Minimum energy performance standards must be based on the lowest realistic life-cycle cost assumptions that take the learning capability and associated potential for cost reduction into account. Retrospective life-cycle cost evaluations show that the assumptions used are, typically, too conservative and the costs of new, efficient technologies assumed to be too high.
- Although not covered by the Eco-design Directive, ecee recognises the importance of interaction between minimum energy performance standards and labelling. It is very important, therefore, that the energy labelling of appliances is revised to encourage further innovation in energy saving. Moreover, energy labelling must be extended to product areas such as fossil fuel boilers, heating and ventilating systems (including air conditioning).

The Eco-design Directive – implementation process

The Eco-design Directive for Energy Using Products (2005/32/EEC) was formally signed by the European Parliament and Council in July 2005. The specific measures, laying down eco-design requirements, that will form the ‘teeth’ of the Directive have to be agreed no later than July 2007.

These implementing measures will be decided by the Commission with the assistance of a regulatory committee. The measures will either be generic, or specific to a certain type of product. They can introduce specific, maximum limits for energy consumption in the production and use of appliances. They may require the manufacturer to inform the consumer of the characteristics and environmental performance of the product and/or provide advice on how to minimise the environmental impact of the product when it is in use.

The European Commission suggests that “some priority should be given to those measures with a high potential for reducing greenhouse gas emissions at low cost”.¹



The early measures are expected to apply to products that represent a significant volume (over 200 000 units a year is an indicative level) of sales and trade in the internal market. The types of product covered will be those identified by the European Climate Change Programme (ECCP) as meeting the above criteria, such as: heating and water heating equipment, electric motor systems, lighting, domestic appliances, office equipment, consumer electronics and HVAC (heating ventilating air conditioning systems). There will also be a separate implementing measure aimed at reducing stand-by losses for groups of products.

In order to take the first step in defining what implementing measures are appropriate, the European Commission launched a tender for a series of preparatory studies, subdivided into 14 sections corresponding to ‘families’ of energy using products. The tender was launched in July 2005 and the resulting reports should be completed from mid-2006 to mid-2007. The first product categories to be studied include: boilers; water heaters; PCs and computer monitors; copiers, faxes, etc; consumer electronics – TVs

Related EU Legislation⁵

1992: The Energy Labelling Directive sets the framework for provision of accessible consumer information. Implementing Directives between 1992 and 2003 enforce labelling for eight product categories (harmonised across EU Member States)

1992, 1996 and 2000: Three minimum energy performance Directives (MEPS) enforce efficiency requirements for three product categories: boilers, fridges/freezers and fluorescent lighting ballasts.⁴

2002: Waste Electrical and Electronic Equipment Directive (WEEE)⁶ sets framework to minimise amount of WEEE produced and maximise the amount reused, recycled and recovered. The Restriction on Hazardous Substances (RoHS) Directive bans use of hazardous substances in similar products.

Eco-design Directive – key dates

2003: Proposal for Directive on Eco-design Requirements for Energy-using Products.

July 2005: Eco-Design Directive signed by the European Parliament and Council. Directive complements earlier EU legislation.

2005 onwards: Commission issues tenders for preparatory studies for 14 categories of energy using products as basis for implementing measures.

March 2006: Commission to finalise make-up of Consultation Forum which will provide a “reality check” on proposed implementing measures.

July 2007: Commission to publish a working plan which will set out for the following three years a list of priority product groups to be considered as priorities for the adoption of implementing measures.

July 2010: The Commission to review the effectiveness of the Directive and its implementing measures.

Criteria for Implementing Measures to the Eco-design Directive:

- a) there shall be no significant negative impact on the functionality of the product, from the perspective of the user;
- b) health, safety and the environment shall not be adversely affected;
- c) there shall be no significant negative impact on consumers in particular as regards the affordability and the life-cycle cost of the product;
- d) there shall be no significant impact on industry’s competitiveness;
- e) in principle, the setting of an Eco-design requirement shall not have the consequence of imposing proprietary technology on manufacturers;
- f) no excessive administrative burden shall be imposed on manufacturers.



etc; stand-by and off mode losses; battery chargers, power supplies; office lighting; street lighting; residential air conditioning; electric motors; commercial refrigerators and freezers; domestic refrigerators and freezers; household dishwashers and washing machines. The studies are scheduled to take either 11, 16 or 21 months depending on the product category. (Further energy using product 'families' were likely to be included in an additional tender expected to be announced in Summer 2006.)

The Directive also calls for the establishment of a group of experts to be called a Consultation Forum. This will allow key stakeholders an opportunity to provide advice and information on the implementation of the Directive. This expert group will contribute to the definition and review of the implementing measures, advise on the efficiency of established market surveillance mechanisms and help assess proposals for voluntary agreements and other self-regulatory measures taken in the context of the Directive.

In July 2007, the European Commission aims to publish a plan that will set out for the following three years a list of product groups considered to be priorities for the adoption of implementing measures. The Commission will review the effectiveness of all aspects of the Eco-design Directive no later than July 2010.

The Eco-design Directive should ensure that energy using product design standards are "at least as ambitious" as those already in existence in other world regions. ●

The Eco-design Directive Consultation Forum

The Forum will be composed of up to 50 members, including one representative from each Member State and acceding country; it will be open to observers from EU candidate and EFTA countries (Iceland, Liechtenstein, Iceland and Switzerland). The Commission expects participation from Member States and all interested parties, including small and medium-sized enterprises (SMEs) and craft industry, trade unions, traders, importers, environmental protection groups and consumer organisations. The Forum is being established in 2006.⁸

A growing source of energy demand

Electrical appliances are the fastest growing source of greenhouse gas emissions after cars in OECD countries. Residential electrical appliances account for 30% of electricity consumption and 12% of greenhouse gas emissions. Based on existing appliances policy, demand is projected to grow 13% by 2010 and 25% by 2025. (IEA, 2003)

Self-regulation by industry; an alternative to Implementing Measures

The Eco-design Directive states that: "Priority should be given to alternative courses of action, such as self-regulation by the industry where such action is likely to deliver the policy objectives faster or in a less costly manner than the mandatory requirements. Legislative measures may be needed where market forces fail to evolve in the right direction or at an acceptable speed."

Monitoring and enforcement of the Eco-design Directive

It will be the responsibility of Member States to ensure that products sold in national markets observe the provisions of the Eco-design Directive. Member States will have to designate which national authorities will be responsible for market surveillance and will also be responsible for deciding appropriate action where there is evidence that an energy using product is not complying with a measure included in the Directive. The sanctions to be used could go as far as the prohibition of certain products from the market. ●

The 'CE Marking'

Energy using products which comply with implementing measures will bear a 'CE' marking and associated information in order for them to be placed on the internal market and to move freely. (The CE marking is not exclusive to products conforming with the Eco-design Directive's provisions. It is a generic mark that is also used to confirm that a product conforms to all applicable standards.)



The Eco-design Directive: Key issues and conclusion

Many observers and stakeholders in the Eco-design Directive agree that the potential for energy saving is very high, but that its actual impact on energy use will only be seen after implementation. According to a communication from the European Parliament, the Directive could prevent nearly 200 million tonnes of CO₂ from entering the atmosphere – an amount equivalent to the total emissions of the Netherlands.⁷

Whether or not the Directive succeeds, depends on the details of the implementing measures. The ‘devil’, indeed, is in the detail of what arises out of the current processes designed to constitute measures to support the Directive.

“The Directive is a good opportunity to reduce stand-by energy consumption... We need an implementing measure that covers as many products as possible and reduces stand-by use to the lowest possible level...”

Hans Paul Siderius, SenterNovem, Netherlands

The process of agreeing specific eco-design requirements and introducing appropriate measures to enhance progress towards them is quite complex and opaque. There are concerns that progress may be slow and get ‘bogged down’ in the detail and in the reconciliation of the differing views of stakeholders. This seems particularly likely to be the case when proposed measures are generic, rather than specific, like minimum energy performance standards (MEPS).

It is discouraging that concerns have been raised about the capacity and preparedness of the European Commission - in terms of technical knowledge and administrative resource - to deliver effective measures to the timescale set. In this situation, the Consultation Forum will have a particularly important role to play in supporting the Commission and clearly has the potential to influence the final measures. It is important that the Forum comprises a balanced and well-informed cross-section of views including representatives of government, industry, NGOs, civil society and some independent experts.

One of the draft Directive’s key battlegrounds was whether voluntary agreements would be acceptable and encouraged as alternatives to implementing measures. The adopted Directive has left the way open for industry groups to come forward with such voluntary agreements. While the industry generally prefers the absence of regulation, environment advocates are doubtful that voluntary agreements can deliver. They cite examples of voluntary agreements that have failed to achieve their promised results – ACEA/

“The energy saving potential of the Directive is huge, but the real impact on energy consumption will be seen only after implementation. It depends what measures and standards are adopted in the next few years...”

Marangiola Fabbri, WWF Press Office

JAMA/KAMA¹² for vehicle emissions, Energy Star for office equipment and the EICTA¹³ Industry Commitment on Consumer Electronics – and would like to ensure that any voluntary agreements accepted are ambitious, monitored, verified, and most importantly, that compliance is guaranteed by the presence of sanctions for failure. (Annexe VIII of the Directive provides indicative criteria for evaluating self-regulation.)

Industry is, of course, concerned about the extra cost burden that may result from the introduction of the specific implementing measures.

Discussions within the Commission and the Consultation Forum are sure to focus on costs and competitiveness. Environmentalists will argue that legislators tend to underestimate the dynamic ability of industry to cut costs and that an overly conservative approach will leave cost-effective potential untapped.

Another battleground area was over whether Member States should be allowed to go beyond minimum requirements set down by the Directive. Some environment groups pointed out that national innovation has been effective in encouraging technical improvements that have then

“We need more (than two) Commission people working on these issues... We need a crash team for market transformation of all these appliances; integrating minimum standards, labelling, public procurement, and taking the initiative to discuss with China, India, Brazil and others, with regard to them also raising their minimum standards. This is crucial for climate change and for the future of energy resources...”

Claude Turmes, Member of the European Parliament

been adopted elsewhere. Tighter minimum standards are also justified, they say, as Europe lags behind in imposing minimum energy performance standards.

The Eco-design Directive makes it possible for Member States to go beyond the minimum requirements only on the basis of scientific evidence proving a specific national problem. In general, the protection of a free and unhindered internal market is the dominant priority.

Both industry and environmental lobby groups have raised concerns about verification procedures in relation to the monitoring of commitments qualifying under the Directive. The European Union’s Member States have a mixed record when it comes to enforcing and monitoring legislation enacted at European level and it would seem unlikely that the detailed provisions determined by the Eco-design Directive will be any different.

“Enforcing minimum efficiency standards and labelling has a huge potential for delivering improvements, but the Commission must receive consistent specialist advice in order to make correct decisions. The ‘stick’ of potential implementing measures in the background is likely to bring forward voluntary agreements where industry structures are suitable for their development.”

Peter Bach, Senior Advisor, Danish Energy Authority

Moreover, environment groups are worried that the acceptance of voluntary agreements enforced by self-regulation and without independent verification could prove to be a significant weakness. Some industry groupings have expressed concern that ineffective enforcement could give a market advantage to 'unscrupulous' organisations, allowing importers to gain an advantage over locally-based manufacturers.

Some critics suggest that the Eco-design Directive gives insufficiently clear guidelines in terms of balancing energy use and other environmental objectives. Without clear and specific environmental objectives it will be impossible, they say, to define the most desired environmental design priorities.

The Eco-design Directive's implementing measures should begin to take effect soon after July 2007 when the Commission will publish a working plan. At this stage, it is not clear how, or whether, these measures can enable ongoing or dynamic improvements in energy efficiency. The July 2010 review process will give an opportunity for the rules to be amended and strengthened if the Directive is not delivering the desired results, or if progress towards energy efficiency is slowing down. ●

“There is no common currency to enable us to measure energy use against other environmental considerations. I fear that without clarity on this, and unless the process is pushed very hard by the Commission, the whole process could get bogged down in the detail. If we focus on energy saving, there are a lot of effective things that can be done.”

Eoin Lees, Independent energy expert

The European Council for an Energy Efficient Economy (ecee)

is a non-profit, membership-based European NGO. The goal of ecee is to stimulate energy efficiency through information exchange and co-operation. To facilitate this, ecee provides an information service through its website and e-mail newsletter, arranges workshops and conferences, and takes active part in the European Policy making process.

One of ecee's principal events is the Summer Study, held for five days every odd year in the early summer. It is Europe's primary event for cross-cutting discussions on energy efficiency. The Summer Study attracts more than 250 participants from a wide range of backgrounds.

ecee and its summer study offers governments, industry, research institutes and citizen organisations a unique resource of evidence-based knowledge and access to reliable information.

ecee promotes the understanding and application of energy efficiency in the energy research, policy and commercial organisations. It offers membership for both individuals and organisations.

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“We believe that voluntary initiatives have the potential to drive change... We see a problem in the fact that the good work by serious companies in Europe can be undermined if future rules are agreed in such a way to leave room for unscrupulous behaviour. We can't go on talking about European competitiveness if we don't create rules while some importers can ignore them with impunity.”¹¹

Ceced, European Committee of Manufacturers of Domestic Equipment

Sources and notes

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