COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels,

Proposal for a

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE

on Energy Efficiency Requirements for Ballasts for Fluorescent Lighting

(presented by the Commission)

EXPLANATORY MEMORANDUM

CONTENTS

1. ENERGY EFFICIENCY BACKGROUND

Improving the efficiency with which energy is consumed is a central theme of energy policy within the European Community, as indicated in the White Paper "An Energy Policy for the European Union"[1], since improved energy efficiency meets all three goals of energy policy, namely security of supply, competitiveness and protection of the environment. Energy efficiency reduces energy consumption, thereby reducing the use of finite energy resources as well as the dependence on energy resources imported from outside the Community. Moreover, there is a considerable economic potential for energy efficiency improvements, (that is, the value of energy saved repays the cost of efficiency within a few years) which would not otherwise be realized in the market. Energy efficiency improvements can therefore improve the competitive position of industry and commerce in the Community, since less energy is used for a given output and, by similarly reasoning, they can also improve the economic welfare of energy users. However in today's policy debate, the most important aspect of energy efficiency is the associated reduction in the generation of emissions to the atmosphere of carbon dioxide (CO_2), the major cause of the greenhouse effect. Energy efficiency is one of the most important policy actions in attaining the Community's objective of reducing CO_2 emissions.

There is also an internal market dimension to a number of important energy efficiency initiatives, in that they can involve requirements for energy-using equipment which are traded within the Community. In order to prevent potential barriers to trade, these requirements need to be harmonized at Community level. The internal market also requires industry and commerce to be operating under similar conditions across the Community as far as practicable, thus reinforcing the need for comparable efforts between Member States on energy and associated environmental initiatives. The precise framing of measures to improve energy efficiency however, will often need to take account of differing national circumstances and opportunities and, where there is no overriding need for action at Community level, may be left to national competence, in line with the principle of subsidiarity. These different considerations, of common energy and environmental objectives, of internal market considerations, and of the principle of subsidiarity, provide the background to the evolution of energy efficiency initiatives, as described in the following paragraphs.

Because of the particular importance of electricity in the energy sector, with electricity generation accounting for about 35% of total primary energy use and about 30% of man-made CO_2 emissions to the atmosphere, the Council adopted a Decision on 5 June 1989 establishing a Community action programme for improving the efficiency of electricity use, PACE[2]. This

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1 Document COM(95) 682 final

2 OJ L 157 of 9.6.1989, p.32 - the acronym is from the name in French: Programme d'action communautaire visant à améliorer l'efficacité de l'utilisation de l'électricité.

Decision calls for the management of actions within the Member States, with the Commission playing a coordinating role and, where appropriate, leading its own actions. The importance of improved energy efficiency in achieving CO_2 emission reductions was strengthened by the Council

Decision of 29 October 1991, establishing the SAVE[3] programme, to give a new impetus to the promotion of energy efficiency in the Community. This programme sets out the kind of actions to be pursued, which include initiatives in all energy consuming areas of the economy, (buildings, the transport sector, industry, etc.), and the methods to be adopted for their promotion, (information, negotiated agreements, minimum efficiency requirements, promotional campaigns, etc.). More recently the Council decided on 16 December 1996 on a multi-annual programme (SAVE II)[4] for the continuation and strengthening of the SAVE programme, by inter alia, including the PACE programme. The need to reinforce measures for the promotion of energy was reiterated in the recent Communication from the Commission on "Energy Efficiency in the European Community - Towards a Strategy for the Rational Use of Energy"[5]. The main conclusions of that Communication have been endorsed by the Council in the Resolution on Energy Efficiency in the European Community[6]. This Resolution calls i.a. on the strengthening of the activities in equipment through the "increased and extended use of labelling, certification and standardisation;" and the "increased use of the negotiated agreements on a voluntary basis".

In addition, as noted above, energy efficiency measures applying to tradable goods, must be established on a Community-wide basis, in order to prevent potential barriers to trade, that national efficiency requirements might create. In this respect, the SAVE programme foresees initiatives to improve the energy efficiencies of energy using equipment. A Directive[7] establishing energy efficiency performance standards for domestic boilers, the first such directive of its kind, was adopted on 21 May 1992. A Directive[8] for energy efficiency requirements for domestic refrigeration appliances was introduced on 3 September 1996. The Commission envisages to continue and strengthen its activities to transform the market for end-use equipment, in particular it plans to introduce minimum efficiency requirements (either through regulation or negotiated agreement) for domestic appliances, electric motors, electric storage water heaters, air conditioners, pumps, etc.

As already indicated, minimum efficiency standards are an essential element of any energy efficiency strategy. It is worth noting that, during last year, three different Council documents, i.e.: the 'Cardiff follow-up: report to the Vienna European Council, 11-12 December 1998 on environmental integration and sustainable development within the area of energy policy'; the Council

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3 OJ L 307 of 8.11.1991, p.34 - Specific Actions for Vigourous Energy Efficiency
4 OJ L 335 of 24.12.1996.
5 Document COM(98) 246 final.
6 OJ C 394 of 17.12.1998.
7 OJ L 167 of 22.6.1992.
8 OJ L 236 of 18.9.1996.

Resolution9 of 7 December 1998 'on energy efficiency in the European Community'; and the Decision No 2179/98/EC10 of the European Parliament and of the Council of 24 September 1998 'on the review of the European Community programme of policy and action in relation to the environment and sustainable development "towards sustainability"', mention explicitly the key role of minimum efficiency standards for appliances in achieving environmental goals.

2. THE NEED TO FOR ENERGY EFFICIENCY REQUIREMENTS FOR BALLASTS

The Commission under the SAVE programme has investigated energy efficiency improvements in the lighting sector as a priority area. A comprehensive study on "Measures to Promote Energy Efficiency Lighting in the Commercial Sector in Europe"[11], carried out for the European Commission, concluded that "mandatory minimum efficiency standards are likely to produce the largest energy savings" and that "the production of performance standards, particularly for fluorescent lamp ballasts, appears from this study to be one of the most effective actions which the EC could take to reduce energy consumption for lighting in commercial buildings and is thus worth further consideration and development." Moreover the study indicated that "actions which do not result in mandatory requirements are likely to be less effective" and "energy labelling would also provide additional information for the designer and specifier and if suitably promoted could lead to the use of more energy efficient lighting components. However the effect on energy consumption of such a labelling scheme is not readily determined."

In the commercial sectors the lighting equipment purchaser is not often the user and therefore he is not concerned by the electricity cost : for example, owners of office buildings tend to install the cheapest lighting systems, as these minimize their cost, while office occupants, who pay the electricity bill, do not have any influence on the choice of equipment. In addition, equipment intended for the commercial sectors is often selected by people having access to all the necessary technical information including energy consumption. Therefore it is felt that an energy label would not be very useful. For the commercial and industrial sectors, the most effective measure to increase

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9 OJ C 394 of 17.12.1998.

10 OJ L 275 of 10.10.1998, p. 1.

11 Study on "Measures to Promote Energy Efficiency Lighting in the Commercial Sector in Europe" was carried out by the Building Research Establishment, United Kingdom (final report December 1994). Lighting in service sector buildings (commercial sector and public sector buildings added together) in the Community consumes about 110 Terawatt-hours per year (TWh/y) or about 5% of total electricity, with an additional consumption of 40 TWh/y for lighting in the industrial sector and 50 TWh/y in the domestic sector. The electricity consumption levels associated with linear fluorescent lamps in the industrial, residential and service sectors are 35 TWh/y, 3 TWh/y and 67 Twh/y respectively, i.e. 105 TWh/y in total consumption (this is of the same order of magnitude as the consumption of domestic refrigeration appliances). Linear fluorescent lighting in all accounts for about 53% of the electricity consumption for all lighting in the Community.

energy efficiency of equipment is to act on the production stage and in particular to introduce minimum efficiency requirements.

The European manufacturers association of luminaires, CELMA introduced in 1997 an "energy" classification scheme[12]. The scheme is now widely adopted by manufacturers throughout the Community. The Commission recognized the usefulness of the scheme, but it is of the opinion that a classification scheme is not enough to achieve the potential savings, as the buyers' choice of ballast in most cases is based on suboptimal economic decisions and based on the purchase price, rather than on the life cycle-cost.

Minimum efficiency requirements are a very powerful instrument in transforming the market and in achieving a large share of energy savings at low cost, especially when equipment purchasers are not influenced by information and labels. Several concerned parties (mainly manufacturers) have expressed their preference for the conclusion of negotiated agreements[13], by which manufacturers voluntarily phase out low efficiency products from the market.

The Commission discussed in detailed the possibility of concluding a negotiated agreement with CELMA. However, CELMA declared that a negotiated agreement was not a viable option, as there is a substantial level of ballasts imported in the Community. If European manufacturers were committing themselves voluntarily to phase out low efficiency ballasts, they would free a market segment, which would be taken by the non-participating manufacturers.

Any installed fluorescent lamp has an associated ballast. A considerable amount of energy is dissipated in ballasts, and this can be quite considerably reduced by using more efficient ballasts. Therefore most experts agree that the ballast is a key area for the reduction of energy use. There are two types of ballasts. The most common ballast is the wire-wound ballast. Among the wire-wound ballasts three different types are defined in the CELMA scheme according to their energy losses. The "high-loss" ballasts (class D) is generally made from poor quality materials; these ballasts are generally quite cheap. "Conventional" ballasts (class C) may be made with slightly higher quality materials (e.g. copper). As a result, the energy losses in the ballasts are decreased, but the cost is higher. The "low-loss" ballasts (class B) use copper windings on high quality steel laminated cores. These low-loss ballasts are relatively expensive. The second type of ballast is the "electronic ballast". Electronic ballasts have relatively low losses similar to the best wire-wound ballasts[14]. However at present electronic ballasts are significantly more

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12 The CELMA scheme foresees 7 classes; class D contains the "high-loss" ballasts; class C the "Conventional" ballasts; the "low-loss" ballasts are contained in two classes B1 and B2. The electronic ballasts are contained in three classes A3, A2 and A1 (which is reserved for dimmable ballasts).

13 Recently two negotiated agreements, the first one covering TVs and VCRs and the second covering domestic washing machines have been negotiated between the European manufacturers trade associations and the Commission.

14 In addition, fluorescent lamps have a higher efficacy when associated with an electronic ballast producing around 20% more light than when operated at the same power at 50Hz.

expensive than wire-wound ballasts. Developments in the near future are likely to consist principally of refinements to the existing technology. For electronic ballasts these may result in cheaper ballasts, but are unlikely to affect energy consumption.

It has already been indicated that technologies now exist which produce high efficiency ballasts, and there is clearly a large variation of efficiency of the ballasts present today on market. In addition, since the market share of the classes of ballasts described above has not moved significantly in the last years[15], it can be concluded that action to promote energy efficiency of ballasts is needed, and in particular minimum efficiency requirements. In fact minimum efficiency requirements are very cost-effective measurement and several countries[16] have adopted or are considering adopting them.

The Proposed Efficiency Levels for Ballasts

Although the optimum for consumers would correspond to the minimum of the life cycle cost, provided that the payback period[17] is shorter than the lifetime of the ballast, this could lead to models with too high an increase in purchase price and therefore could result in a decrease of sales (for example, users could postpone the upgrading of their lighting systems). A more realistic technical/economic criterion for setting efficiency requirements is that efficiency improvements should have a short payback time, after about 3 years[18] or less. The correct length of the payback period should be determined in such a way that there will not be any significant impact on manufacturers' through reduced sales.

As already mentioned the European manufacturers association of luminaires, CELMA introduced a classification scheme in 1997. The Commission agreed in discussion with manufacturers that minimum efficiency levels would be more effective if the thresholds were set at the boundaries between the classes of the CELMA classification scheme, as this would coincide with an industry established market segmentation, and would also simplify market surveillance.

A comprehensive cost/benefit analysis was carried out for the Commission in 1996[19] to evaluate the impact of minimum efficiency requirements. In order to give to the ballast manufacturers time to adapt whilst ensuring progress to an achievable and economic level of efficiency; the study recommended the

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15 In 1994 "high-loss" ballasts had a market share of 15%; "conventional" ballasts represented 65% of the market; "low-loss" ballasts had a market share of 15%; and electronic ballasts had a market share of 5%.

16 These countries include : USA, Canada, South Korea, Philippines, Mexico, New Zealand, Australia, Taïwan.

17 The payback period measures the amount of time it takes to recover the additional consumer investment in lower operating expenses through increased efficiency.

18 This is considered an acceptable return on investment by most of the end-users, although real energy efficiency investments are only carried out if the internal rate of return is higher than 50%. This is a typical market barrier.

19 Study on "Cost Benefit Analysis of the Implementation of Minimum Efficiency Standards for Fluorescent Lamp Ballasts" carried out by the Building Research Establishment, United Kingdom (Final Report September 1996).

adoption of three progressive levels of minimum efficiency; all three levels are more demanding than the proposed ones. Industry at the time (1996) accepted the levels of the present proposal although with a shortened timetable[20]. The efficiency requirements of the present proposal have been based on cost/benefit analysis and on discussions with industry. Moreover in December 1998 CELMA declared that manufacturers are happy with the proposed levels.

To minimize the impact on manufactures, a phased approach is foreseen, associated with long transition periods before the entry into force of each level of minimum efficiency requirements. The first level of the present proposal is envisaged to phase out class D ("high-loss") ballasts and to come into force one year after the adoption of the Directive (assuming adoption by 1.1.2001, it will come into force on 1.1.2002). A one year transition period is judged consistent with the small investments and adaptations needed to meet the first step. After three years (1.1.2005) a second efficiency step is envisaged to come into force, by which the class C ("conventional") ballasts will be phased out. As these ballasts represent the bulk of the actual market, considerable time as been allowed for this step. In particular, taking into account that manufacturers agreed to such a step during the beginning of 1996[21], this represent a very long transition time. The third and final step of the proposal will then be implemented after a further three years (1.1.2008) and will be based on the then present market situation, in particular on the price of electronic ballasts (classes A1, A2, A3) and the most efficient magnetic ballast on the market (class B1). As the market might change considerably in response to the introduction of the first two levels, it is proposed to analyse the technical and market situation again at the time of the entry into force of the second level.

The price increase associated with all three successive efficiency levels is under _2 , but would exceed _20 for changes involving electronic ballasts (class A)[22]. Minimum efficiency requirements for ballasts would apply to all buyers and installations, making a complete ban of all wire-wound ballasts unfeasible as it might require investment increases of about _20 per luminaire.

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20 The study recommended a scenario with the following implementation schedule : ban on ballast class D from 1 January 1998 followed by bans on ballast class C and B2 from 1 January 2003. Industry endorsed the following scenario : a ban of ballast class D from 1 January 1998 followed by bans on ballast class C from 1 January 2003 and of ballasts class B2 from 1 January 2008.

21 "We would like to fix our attention on an hypothesis of a realistic timing for a gradual conversion to more energy efficient ballasts. Keeping as a basis the classification that the ballast manufacturers are trying to develop in Europe, we can say that the products included in class D could be eliminated by 1 January 1998. A transitory period of two years after the publication of the standard for measurement method for ballasts is an acceptable date for the start of a policy of minimum efficiency standards in the European market and we must provide a period of 5 years for the realisation of the conversion to low-loss ballasts (class C)."

22 For domestic users (purchasing from retailers and with an annual use of 600 hr/yr), the payback periods range from 2 to 6 years for changes in ballasts involving only wire-wound ballasts (class D, C and B1), based on an average European electricity price of 0.15 ECU/kWh. Any changes to electronic ballasts from magnetic ballasts are presently associated with payback periods of 17 to over 28 years. In the service and industrial sectors wire-wound ballasts can be replaced by a corresponding wire-wound ballast of a higher efficiency class up to class B1 with a payback period of less than 2 years, based on a typical electricity price of 0.1 ECU/kWh.

Therefore it can be concluded that a ban on wire-wound ballasts would place an undue cost burden on domestic users[23]. On the contrary the proposed minimum efficiency requirements have an acceptable payback period for all users, and as already indicated, the impact on industry is acceptable.

3. IMPLEMENTING THE EFFICIENCY REQUIREMENTS

Well defined systems have been developed at Community level on technical harmonization and standards, as a central part of completing the internal market. The "new approach to technical harmonization and standards", adopted in 1985[24,] represents an established way of using standardization in support of the process of Community technical legislation. Under the "new approach", the European standardization bodies are asked to draw up, under mandate from the Commission, standards intended as a means of providing presumption of conformity to the essential requirements of legislative harmonized standards. The "new approach" foresees that the essential requirements of harmonized standards are defined by Directives, as opposed to the older alternative of mutually recognizing national standards where these existed.

As indicated in the first chapter, energy efficiency is at the core of energy and environmental policies, being one of the key action to reduce CO_2 emissions; in addition energy efficiency is also closely linked to industrial and consumer protection policies, because it results in large savings for energy users and it impacts positively on manufacturers. In the case of energy efficiency, the essential requirement is the "level of efficiency", a political decision which cannot be left to any interested party, nor can be delegated. As described in the "new approach" Resolution, "the essential (safety) requirements which must be met in the case of products which can be put on the market shall be worded precisely enough in order to create, on transposition into national law, legally binding obligations which can be enforced". This indicates clearly that a generic requirement that equipment must be energy efficient cannot be considered as an essential requirement; a clear definition of level of efficiency must therefore be contained in the legislation.

The two previous Directives covering efficiency standards, i.e. the "Boilers" and the "Refrigerators" Directives contained the minimum efficiency levels in the Annexes. During discussions of the latter in the Council, some Member States expressed their preference for mandating technical requirements to the standardization bodies. However, in the case of energy efficiency, giving open mandates, on the basis of which the standardization bodies define the appropriate levels, would delegate the political decision to technical bodies, which sometimes are composed mainly of representatives from industry.

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[23] In the next 5 to 8 years the prices of electronic ballasts may decrease substantially, reducing the price differences to 10 to 15 ECU between wire-wound and electronic ballasts. Even so the payback period for domestic users would still exceed 10 years and could be over 15 years.

[24] Council Resolution on a new approach to technical harmonization and standards, OJ C 136 of 4.6.1985, p. 1.

The present proposal covers ballasts placed on the Community market. A large number of ballasts produced in the Community are exported as components or as parts of completed products, i.e. luminaires. In order to maintain the competitiveness of the Community manufacturers it is proposed that ballasts destined to the export markets are not covered by the present proposal. The proposed Directives' Articles are structured in a similar manner as to the one of the "Refrigerator Directives"; this is because both the Directives have the same goal, i.e. to introduce efficiency requirements for electrical good; moreover both the Directive use the CE marking as the mark of conformity.

4. ADMINISTRATIVE ARRANGEMENTS PROPOSED

Methods of assessing the conformity of products with such harmonized standards, based on the so called "global approach", have also been adopted at Community level[25], [26] and have been incorporated in this proposal. This approach allows use of one or more of a set of "modules" which outline different procedures for assessing the conformity of a product with the imposed standards. The different modules are designed to meet different possible circumstances and are selected as appropriate to meet the requirements of the Directive in question.

A mandatory "type-conformity" testing procedure to be carried out by appropriate bodies designated by Member State governments, (so called "notified bodies"), would be extremely onerous and would require very considerable expenditure and time commitments by both manufacturers and the notified bodies themselves. A conformity assessment procedure based on self assessment is therefore proposed. This procedure is also required for conformity assessments for other Directives which cover ballasts, namely the "Low Voltage Directive"[27] and the "Electro-magnetic Compatibility Directive"[28].

Under the self assessment module, manufacturers are required to draw up technical documentation and accompanying test reports in support of the declaration of conformity they are also required to make. All these documents must be kept available for inspection by the public authorities at any time, and in particular if doubts arise about the conformity of a particular model of appliance. These are formal procedures which must be followed before the CE marking can legitimately be affixed by the manufacturer, allowing the product to be placed, and to circulate freely, on the Community market. Some commentators have expressed doubts about the effectiveness of a self-

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25 Council Resolutions on a global approach to conformity assessment, OJ C 10/1 of 16.1.1990, p. 1.

26 Council Decision 90/683/EEC concerning the modules for the various phases of the conformity assessment procedures which are intended to be used in technical harmonization directives, OJ L 380 of 31.12.1990, p. 13.

27 OJ L 077 of 26.03.1993, p. 29.

28 OJ L 139 of 23.5.1989, p. 19 as amended by OJ L 126 of 12.5.1992, p. 11.

assessment procedure, but under the circumstances as described above, it is felt to be sufficient, all the more so when account is taken of the threat of prosecution under the appropriate trades description legislation in a country and the very negative publicity which could accompany a false claim on energy efficiency. In any event, it is proposed that in the report to be drawn up on the operation of the Directive, in line with the guidelines developed for Community conformity assessment procedures, the effectiveness and efficiency of the conformity procedures shall be given particular attention. In addition, the Commission services are investigating possible actions to strengthen market surveillance, to be carried out either by the Commission services, the national surveillance authorities or third parties.

5. SCOPE OF THE PROPOSED DIRECTIVE AND RESULTS EXPECTED FROM THE PROPOSED DIRECTIVE

The purpose of the proposed Directive is to achieve cost-effective energy savings in fluorescent lighting, which would not otherwise be achieved with other measures. The proposed Directive covers only newly produced ballasts, which are responsible for large electricity consumption and present a large potential for energy savings.

The average life of a fluorescent lighting installation is about 20 years and the average life of a ballast is about 15 years or more depending upon the annual hours of use. Since only a percentage of ballasts are replaced[29] each year on average, the impact of standards on electricity consumption will be relatively slow, though continually increasing over time. It has been estimated that the efficiency requirements envisaged under this Directive could give the following electricity and consequent CO_2[30] emission reductions :

Estimated Reductions in Electricity Use and
Consequent CO_2 Reductions from Electricity Generation
for the Community from Ballast Efficiency Requirements
(adoption on 1 January 2001)

	2000	2005	2010	2020
Total Community electricity consumption for fluorescent lighting (TWh/year)				
- without efficiency requirements	105	108	111	118

[29] In addition, new ballasts will be installed in the new commercial buildings constructed after the entry into force date.

[30] Based on the Community electricity generation mix forecast for the period in question.

- with efficiency requirements	105	107	106	106
Savings through efficiency requirements	-	1	5	12
CO_2 emissions avoided through standards (Mtonnes/yr.)		0.5	2.5	6

The absolute savings become very substantial in time, reaching 12 TWh/y by the year 2020, when the full installed park has been replaced, worth about 1000 M_ per year to commercial and industrial users (the cumulative saving up to year 2020 are worth 9000 M_). This correspond to a reduction of about 10 % of the electricity consumption of fluorescent lighting. It is in the nature of measures to improve energy efficiency that they must be applied to the very many and diverse uses of energy in our modern economies. According to the Commission estimate, the market transformation process for major electric end-use equipment,[31] starting with the Domestic Refrigerators Directive, by adding individual savings to the year 2010, will result in an electricity savings of at least 10 % of total electricity consumption or 220 TWh/y.

In the light of the relatively slow though steady impact of standards on the stock of ballasts, Commission plans to introduce measures to enhance and accelerate the appliance renewal process. This will be achieved through the promotion of greater awareness of the energy efficiency aspects of lighting equipment, by supporting demonstration of innovative technologies, information activities, technology procurement and demand side actions. The soon to be launched "EU Green Light" Programme will have a key role in fostering this market transformation.

6. CONCLUSIONS

- The proposal is part of the Commission's strategy to improve efficiency of end-use electrical equipment, as indicated in the recent Commission Communication on "Energy Efficiency in the European Community - Towards a Strategy for the Rational Use of Energy". It follows the same approach of the "Refrigerator" Directive, and of the negotiated agreements for TVs and VCRs and washing machines. Other equipment (e.g. electric motors, electric water heaters, etc.) will be the subject of future initiatives.

- Minimum efficiency requirements for ballasts are essential to improve efficiency of fluorescent lighting; as previously indicated, a classification/labelling scheme would have only a limited impact. Ballasts

[31] This includes the major domestic appliances (refrigerators and freezers, washing machines, dishwashers, etc.), water heaters, lighting components, electric motors, air conditioners, pumps, compressors, etc.

manufacturers were not able to offer a negotiated self-commitment, and they agreed on the introduction of minimum efficiency requirements; as demonstrated, the proposed minimum efficiency requirements are a very cost-effective measure.

- The proposed levels would have a minor impact on industry given the long adaptation period, with a large positive impact on all users of fluorescent lighting.

- The electricity savings and the CO_2 emissions reduction, although relatively small (but comparable to the one generated by the "Refrigerator" Directive), will increase over time and added on to all the other electrical end-use equipment, become substantial. The present proposal is a contribution to the Community and Member States' efforts to reduce CO_2 emissions to meet the Kyoto targets in a cost-effective manner.

Proposal for a

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE

on Energy Efficiency Requirements for Ballasts for Fluorescent Lighting

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community and in particular Article 95 thereof,

Having regard to the proposal from the Commission,[32]

Having regard to the opinion of the Economic and Social Committee[33],

Acting in accordance with the procedure laid down in Article 251 of the Treaty[34]

(1) Whereas it is important to promote measures aimed at the proper functioning of the internal market;

(2) Whereas in its resolution of 15 January 1985 on the improvement of energy-saving programmes in the Member States[35] the Council invited the Member States to pursue and, where necessary, increase their efforts to promote the more rational use of energy by the further development of integrated energy-saving policies;

(3) Whereas fluorescent lighting accounts for a significant share of energy consumption in the Community and thus of total energy consumption; whereas the various models of ballasts for fluorescent lighting available on the Community market have very different levels of consumption for a given type of lamp, i.e. extremely variable energy efficiency;

(4) Whereas some Member States appear to be on the point of adopting provisions relating to the efficiency of ballasts for fluorescent lighting, which might create barriers to trade in these products in the Community;

(5) Whereas it is appropriate to take as a base a high level of protection in proposals for the approximation of the provisions laid down by law, regulation or administrative action in Member States concerning health, safety, environmental protection and consumer protection; whereas this Directive ensures a high level of

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32 OJ C

33 OJ C

34 Opinion of the European Parliament of 26 October 1995 (OJ C 308, 20.11.1995, p.134), Council common position of 11 March 1996 (OJ C 120, 24.4.1996, p.10) and Decision of the European Parliament of 18 June 1996 (OJ C 198, 8.7.1996).

35 OJ C 20, 22.1.1985, p. 1.

protection for both the environment and the consumer, in aiming at a significant improvement of the energy efficiency of ballasts;

(6) Whereas the adoption of such measures falls within Community competence; whereas the requirements of this Directive are within the limits of its objectives, thus conforming to the requirements of Article 5 of the Treaty;

(7) Whereas, moreover, Article 174 of the Treaty calls for the protection and improvement of the environment and prudent and rational utilisation of natural resources, these two objectives being among those of the Community policy on the environment; whereas electricity generation and consumption account for 30% of man-made carbon dioxides (CO_2) emissions and some 35% of primary energy consumption in the Community, whereas these percentages are increasing;

(8) Whereas, furthermore, Council Decision 89/363/EC of 5 June 1989 on a Community action programme for improving the efficiency of electricity use[36] has as its twin objectives to encourage consumers to favour appliances and equipment with high electrical efficiency and to improve the efficiency of appliances and equipment;

(9) Whereas in its conclusions of 29 October 1990 the Council set an objective of stabilising carbon dioxide ($C0_2$) emissions in the Community at 1990 levels by the year 2000; whereas the UNFCCC Protocol agreed in Kyoto on 10 December 1997 calls for a greenhouse gases emission reduction for the Community of 8% by year 2012; whereas in order to achieve this objective stronger measures are required to limit and to reduce $C0_2$ emissions within the Community;

(10) Whereas Decision 91/565/EC[37] established a programme to promote energy efficiency in the Community (the SAVE programme); and Decision 96/732/EC[38] established a new multiannual programme (the SAVE II programme) to continue and strengthen the action of the original SAVE programme;

(11) Whereas most energy-efficient ballasts are available at a different cost and they can pay for their initial cost through electricity savings within a few years; whereas this calculation does not take into account the added benefit of the external costs of electricity generation thereby avoided, such as emissions of carbon dioxide (CO_2) and other pollutants;

(12) Whereas this Directive, which is aimed at eliminating technical barriers with regard to improving the energy efficiency of ballasts for fluorescent lighting, must follow the "new approach" established by the Council resolution of 7 May 1985 on a new approach to technical harmonisation and standards[39] which specifically lays down that legislative harmonisation is limited to the adoption, by means of directives, of the essential requirements with which products put on the market must conform;

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36 OJ L 157, 9.6.1989, p. 32.
37 OJ L 307, 8.11.1991, p. 34.
38 OJ L 355 of 24.12.1996, p. 50.
39 OJ C 136, 4.6.1985, p. 1.

(13) Whereas Council Resolution of 19 June 1998 called for a programme of complementary common and co-ordinated measures, such as improved dynamic energy efficiency standards.

(14) Whereas an effective enforcement system is necessary to ensure that the Directive is implemented properly, guarantees fair conditions of competition for producers and protects consumer rights;

(15) Whereas regard should be had to the Council Decision 93/465/EEC of 22 July 1993 concerning the modules for the various phases of the conformity assessment procedures and the rules for the affixing and use of the CE conformity marking[40], which are intended to be used in the technical harmonisation directives;

(16) Whereas in the interest of intemational trade, international standards should be used wherever appropriate; whereas the electricity consumption of a ballast is defined by the European Committee for Standardisation Standard EN 50294 of July 1998, which is based on international standards;

(17) Whereas ballasts for fluorescent lighting complying with the energy efficiency requirements of this Directive must bear the "CE" marking and associated information, in order to enable them to move freely;

(18) Whereas this Directive is confined to ballasts for fluorescent lighting, supplied by mains electricity;

(19) Whereas it did not prove possible to achieve the same objectives of the present proposal through a negotiated agreement with the European association of ballast manufacturers: CELMA, due to the high level of imports into the Community market

HAVE ADOPTED THIS DIRECTIVE:

Article 1

This Directive shall apply to new electric mains-operated ballasts for fluorescent lighting sources as defined in Annex I and referred to hereafter as "ballasts".

However ballasts to be exported from the Community either as individual parts or as parts of luminaires shall be excluded.

Article 2

1. Member States shall take all necessary measures to ensure that ballasts covered by this Directive can be placed on the Community market and put into service only if the power consumption of the ballast in question is less than or equal to the maximum allowable power consumption value for its category as calculated according to the procedures defined in Annex I.

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[40] OJ L 220 of 30.8.1993, p. 23.

2. The manufacturer of a ballast covered by this Directive, its authorised representative established in the Community or the person responsible for placing the ballast on the Community market shall be responsible for ensuring that each ballast placed on the market conforms with the requirement referred to in paragraph 1.

Article 3

1. Member States may not prohibit, restrict or impede the placing on the market or the putting into service in their territory of ballasts which bear the "CE" marking attesting to their conformity with all the provisions of this Directive.

2. Unless they have evidence to the contrary, Member States shall presume that ballasts bearing the "CE" marking required under Article 5 comply with all the provisions of this Directive.

3. (a) Where ballasts are subject to other directives covering other aspects which also provide for affixing of the "CE" marking, the latter shall indicate that the ballasts in question are also presumed, unless evidence to the contrary exists, to conform to the provisions of those other directives.

   (b) However, where one or more of these directives allows the manufacturer, during a transitional period, to choose which rules to apply, the "CE" marking shall indicate conformity solely with the provisions of those directives applied by the manufacturer. In this case, the reference numbers of the directives applied, as published in the *Official Journal of the European Communities*, must be given in the documents, notices or instructions accompanying the ballasts.

   (c) When ballasts are exported from the Community either as individual parts or as parts of luminaires this must be clearly indicated by manufacturer, its authorised representative established in the Community or the person responsible for placing the ballasts on the Community market in the documents, notices or instructions accompanying the ballasts.

Article 4

The conformity assessment procedures and the obligation relating to the "CE" marking of ballasts are laid down in Annex II.

Article 5

1. When ballasts are placed on the market, they must bear the "CE" marking, which shall consist of the initials "CE". The form of the marking to be used is shown in Annex III. The "CE" marking shall be affixed visibly, legibly and indelibly to ballasts and, where appropriate, to the packaging.

2. The affixing on ballasts of any markings which are likely to mislead third parties as to the meaning and form of the "CE" marking shall be prohibited. Any other

marking may be affixed to the ballasts, their packaging, the instruction sheet or other documents, provided that the "CE" marking remains clearly visible and legible.

Article 6

1. Where a Member State establishes that the "CE" marking has been affixed improperly, the manufacturer or his authorised representative established within the Community shall be obliged to bring the product into conformity and to end the infringement in accordance with the conditions imposed by the Member State. Where neither the manufacturer nor his authorised representative is established within the Community, the person who places the ballasts on the Community market shall undertake these obligations.

2. Where the product continues not to be in conformity, the Member State shall take all necessary measures pursuant to Article 7 to restrict or prohibit the placing on the market of the product in question or to ensure that it is withdrawn from the market.

Article 7

1. Any decision taken pursuant to this Directive which contains a restriction on the placing on the market of ballasts shall state the precise grounds on which it is based. The party concerned shall be notified without delay of the decision and shall be informed at the same time of the possibilities and time limits regarding the legal remedies available to it under the laws in force in the Member State in question.

2. The Member State shall immediately inform the Commission of any such measure, indicating the reasons for its decision. The Commission shall make this information known to the other Member States.

Article 8

1. Member States shall adopt and publish the laws, regulations and administrative provisions necessary to comply with this Directive within a year of its adoption. They shall immediately inform the Commission thereof.

   Member States shall apply these provisions on the expiration of a period of one year counting from the date of adoption of this Directive.

   When Member States adopt these provisions, these shall contain a reference to this Directive or shall be accompanied by such reference at the time of their official publication. The procedure for such reference shall be adopted by Member States.

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt in the field covered by this Directive.

3. During a one-year period following adoption of this Directive, Member States shall permit the placing on the market of ballasts which comply with the same conditions as those which were applied on their territory at the date of adoption of this Directive.

Article 9

1. After four years from the adoption of this Directive the second set of maximum allowable power consumption values as defined in Annex IA will become applicable.

2. Before the expiry of a period of four years from the adoption of this Directive, the Commission shall make an assessment of the results obtained as compared with those expected. With a view to advancing to a third stage in energy efficiency improvement, the Commission shall then consider, in consultation with the interested parties, the need to lay down a third set of maximum allowed power consumption levels for significantly improving the energy efficiency of ballasts. In this case, the power consumption and the date of its entry into force will be based on levels which can be economically and technically justified in the light of the circumstances at the time. Any other measure judged appropriate to improve energy efficiency of ballast shall also be considered.

Article 10

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Communities.*

Article 11

This Directive is addressed to the Member States.

Done at Brussels,

For the European Parliament
The President

For the Council
The President

ANNEX I

Methods for Calculating the Maximum Allowable Power Consumption

for a Given Ballast Type and Procedures for the Verification of Conformity therewith

The energy efficiency of the lamp-ballast circuit is determined by the total input power into the circuit. This is a function of the lamp power and of the type of ballast; for this reason, the maximum allowed power consumption of a given ballast is defined as the maximum ballast-lamp circuit power, with different levels for each lamp power and ballast type.

To calculate the maximum allowable consumption of a given ballast, it must therefore first be allocated to the appropriate category from the following list :

Category	Description
1	Ballast for linear lamp type
2	Ballast for compact 2 tubes lamp type
3	Ballast for compact 4 tubes flat lamp type
4	Ballast for compact 4 tubes lamp type
5	Ballast for compact 6 tubes lamp type
6	Ballast for compact 2 D lamp type

The maximum allowable power consumption expressed in W is defined by the following table :

Ballast Category	**Lamp Power**		**Maximum Allowable Power Consumption**
	50 Hz	HF	
1	15 W	13.5 W	≤ 25 W
	18 W	16 W	≤ 28 W
	30 W	24 W	≤ 40 W
	36 W	32 W	≤ 45 W
	38 W	32 W	≤ 47 W
	58 W	50 W	≤ 70 W
	70 W	60 W	≤ 83 W
2	18 W	16 W	≤ 28 W
	24 W	22 W	≤ 34 W
	36 W	32 W	≤ 45 W
3	18 W	16 W	≤ 28 W
	24 W	22 W	≤ 34 W
	36 W	32 W	≤ 45 W
4	10 W	9.5 W	≤ 18 W
	13 W	12.5 W	≤ 21 W
	18 W	16.5 W	≤ 28 W
	26 W	24 W	≤ 36 W
5	18 W	16 W	≤ 28 W
	26 W	24 W	≤ 36 W
6	10 W	9 W	≤ 18 W
	16 W	14 W	≤ 25 W
	21 W	19 W	≤ 31 W
	28 W	25 W	≤ 38 W
	38 W	34 W	≤ 47 W

Definitions

The terms used in this Annex correspond to the definitions in European Standard EN 50294 of July 1998 laid down by the European Committee for Standardization.

ANNEX IA

The second set of maximum allowable power consumption which becomes applicable four years from the adoption

Ballast Category	**Lamp Power**		**Maximum Allowable Power Consumption**
	50 Hz	HF	
1	15 W	13.5 W	≤ 23 W
	18 W	16 W	≤ 26 W
	30 W	24 W	≤ 38 W
	36 W	32 W	≤ 43 W
	38 W	32 W	≤ 45 W
	58 W	50 W	≤ 67 W
	70 W	60 W	≤ 80 W
2	18 W	16 W	≤ 26 W
	24 W	22 W	≤ 32 W
	36 W	32 W	≤ 43 W
3	18 W	16 W	≤ 26 W
	24 W	22 W	≤ 32 W
	36 W	32 W	≤ 43 W
4	10 W	9.5 W	≤ 16 W
	13 W	12.5 W	≤ 19 W
	18 W	16.5 W	≤ 26 W
	26 W	24 W	≤ 34 W
5	18 W	16 W	≤ 26 W
	26 W	24 W	≤ 34 W
6	10 W	9 W	≤ 16 W
	16 W	14 W	≤ 23 W
	21 W	19 W	≤ 29 W
	28 W	25 W	≤ 36 W
	38 W	34 W	≤ 45 W
		55 W	

ANNEX II

Conformity Assessment Procedures (Module A)

1. This module describes the procedure whereby the manufacturer or his authorized representative established within the Community, who carries out the obligations laid down in point 2, ensures and declares that the ballast satisfies the relevant requirements of this Directive. The manufacturer shall affix the "CE" marking to each ballast which he manufactures and draw up a written declaration of conformity.

2. The manufacturer must establish the technical documentation described in paragraph 3 and he or his authorized representative established within the Community shall keep it at the disposal of the relevant national authorities for inspection purposes, for a period of not less than three years from the date on which the last ballast has been manufactured.

   Where neither the manufacturer nor his authorized representative is established within the Community, the obligation to keep the technical documentation available is the responsibility of the person who places the ballast on the Community market.

3. Technical documentation must enable the conformity of the ballast with the requirements of this Directive to be assessed. It must, as far as is relevant for such assessment, cover the design, manufacture and operation of the ballast and shall comprise:

   i) the name and the address of the manufacturer;

   ii) a general description of the model sufficient for unambiguous identification;

   iii) information, including drawings as relevant, on the main design features of the model and in particular on items which appreciably affect its electricity consumption;

   iv) the operating instructions, if any;

   v) the results of power consumption measurements carried out as required by point 5;

   vi) details of the conformity of these measurements as compared to the energy consumption requirements set out in Annex I.

4. Technical documentation established for other Community legislation may be used in so far as it meets the requirements of this Annex.

5. Manufacturers of ballast are responsible for establishing the power consumption of each ballast covered by this Directive according to the procedures specified in European Standard EN 50294, as well as the appliance's conformity with the requirements of Article 2.

6. The manufacturer or his authorized representative must keep a copy of the declaration of conformity with the technical documentation.

7. The manufacturer must take all measures necessary in order that the manufacturing process ensures that the manufactured ballasts comply with the technical documentation referred to in point 2 and with the relevant requirements of the Directive.

ANNEX III

"CE" Conformity Marking

The conformity marking shall consist of the initials "CE" taking the following form :

If the "CE" marking is reduced or enlarged the proportion given in the above graduated drawing must be respected.

The various components of the "CE" marking must have substantially the same vertical dimension, which may not be less than 5 mm.

BUSINESS - IMPACT ASSESSMENT

The Impact of the Proposal on Business
with Special Reference to Small and Medium Sized Enterprises (SMES)

Title of the Proposal : PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON ENERGY EFFICIENCY REQUIREMENTS FOR BALLASTS FOR FLUORESCENT LIGHTING

Document Reference Number : 99002

1. THE PROPOSAL

Taking account of the principle of subsidiarity, why is Community legislation necessary in this area and what are its main aims ?

Energy consumption of fluorescent lighting amount to 105 TWh (Tera Watt hour) per year; fluorescent lighting is mainly used in the tertiary sector buildings (offices, schools, hospitals, etc.) and in industry premises. Large energy savings, and the associated CO_2 emissions reductions, can be achieved with the use of more energy efficient ballasts, indispensable components to fluorescent lighting fixtures. To achieve these savings, it is essential to promote high efficiency ballasts and to phase out the very low efficiency units. The difference in energy efficiency performance between the best and the worst on the market is about 60 %. There is an extra cost associated with more efficient ballasts; however, this is paid back in few years. Therefore high efficiency ballasts are cost-effective.

Ballasts are mainly bought by Original Equipment Manufacturers (OEMs)[41], which mount the ballast in the light fixture. As OEMs do not benefit of the (large) electricity savings, they tend to specify equipment with the lowest initial cost. The same applies to commercial building owners, who rent the premises, when they retrofit the lighting systems. Therefore a labelling action to inform users of the economic benefit of high efficiency ballasts would have only a very limited effect. Energy efficiency experts and Member States agree that the most effective policy instrument to achieve market transformation in term of energy efficiency is to introduce minimum efficiency requirements for ballasts.

The Commission explored the possibility to reach a negotiated agreement with industry to phase out low efficiency ballasts. The European manufacturers

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41 The market is divided into two segments : the industry of primary consumption (OEM) and the distribution (retailer). These markets vary from country to country but, on average, the OEM covers about 80% of the market, while the distribution about 20%. Retail prices tend to be about 2.5 times higher than OEM prices. The average retail price in year 1994 for high-loss ballasts (class D) was about _3, the average price of conventional ballasts (class C) was about _4, and the price of low-loss ballasts (classes B2 and B1), was respectively about 5.6 and _6.6. Electronic ballasts (class A) were about 4 times more costly than class B ballasts, these price difference is forecast to decrease.

were ready to phase out voluntarily low efficiency ballasts, however they feared that imported products would take the market share they would abandon. Manufacturers agreed that the best option for them was to have a Directive introducing an "harmonized" minimum efficiency requirements.

In addition, Member States as part of their post-Kyoto strategy to reduce CO_2 emissions are considering to introduce national requirements for efficiency of ballasts. Because ballasts are traded goods, any Member State's legislation to introduce mandatory efficiency requirements would create a potential barrier to trade.

Therefore it can be concluded that Community legislation in this area is justified, as it will contribute to the reduction of CO_2 emissions in a cost-effective manner with high economic benefits for lighting users, and a low impact on manufacturers, and this while preserving the internal market.

A similar approach has been followed for other energy using equipment (e.g. domestic refrigeration appliances). It is recognized by Member States that efficiency requirements have to be introduced at Community level in an harmonized way by means of Directives in order to preserve the internal market (this type of measure is referred as a common policy in the post-Kyoto strategy).

2. THE IMPACT ON BUSINESS

a) Who will be affected by the proposal ?

- *which sectors of business*
- *which sizes of business (what is the concentration of small and medium sized firms)*
- *are there particular geographical areas of the Community where these businesses are found*

The proposal would impact first on ballast manufacturers, and secondly on commercial buildings and industrial premises occupants. The two impacts are completely different.

As far as the impact on ballast manufacturers is concerned, today's market structure can absorb around 120 million of conventional ballasts (of which about 20 millions are very low efficiency and about 17 million high efficiency ballasts) and 10 million of electronic ballasts per year. The average size of the manufacturing companies is medium-small. The manufacturers could be divided in four groups:

– 5 companies with production plants in Germany, France, Italy, Finland and Austria. On the average, these productive units have an installed capacity of 15 to 20 million pieces and employ about 250 to 300 people each.

– Companies of a medium-small size with a capacity of 5 to 10 million pieces and employing about 50 to 100 people, these plants are located mainly in France and Spain;

– Companies with a capacity around 1 to 2 million pieces, these operate mainly at national level, with production plants in Italy, Spain, Portugal, Greece and United Kingdom. Each production unit employs around 50 people.

– A few large multinational companies (e.g. like Philips, Siemens, General Electric/Thorn, Osram) who tend to produce all the components of the lighting system in house: for example production of lamps, ballasts and luminaries. In this last group, the ballast production is mainly intended for consumption inside the company. The production units are located in the Netherlands, France, Italy, United Kingdom and Germany.

b) What will business have to do to comply with the proposal ?

To comply with the proposal, manufacturers have to phase out progressively in time production (or just to refrain to market them in the Community) of low efficiency ballasts. The proposal allows for a relatively long transition periods before the entry into force of the proposed levels. An energy efficiency classification scheme has been developed by the EU manufacturers association, CELMA, in collaboration with the European Commission. The proposed efficiency levels are based on the CELMA classification scheme. There are no EU manufacturers who cannot meet the first efficiency level.

All the manufacturers producing low efficiency ballasts (class D of the CELMA classification scheme) are also producing medium efficiency units (class C). In any case the same technology and production lines can be used for producing C class ballasts. To meet the proposed first level there is no need for new technology or proprietary knowledge, only the use of better quality material (e.g. replacing aluminum wire with copper and higher quality steel, etc.) and better quality control in the production plant are required.

For the second level a longer adaptation time has been envisaged as some production lines need upgrading. In general, more efficient magnetic ballasts requires more material than low efficiency one; in particular the low-loss ballast (class B) requires about 50% more material. The increase in the magnetic steel stack length will cause a reduction in the productivity of the lines that produce conventional ballasts (class C). Therefore, industry should introduce new lines of production in order to maintain the same produced quantity. The time to prepare a new production line ranges from 18 to 24 months. For the second step, i.e. the phase out of class C, it is foreseen a 4 years transition period from the adoption of the present proposal: therefore enough time is given to manufacturers to modify the production lines if needed. As already indicated, the first step (phase out of class D), require no investments and can be achieved by using better quality materials, for this reason a one year adaptation time has been foreseen.

c) What economic effects is the proposal likely to have ?

- *on employment*

- *on investment and the creation of new businesses*

- *on the competitive position of businesses*

As indicated in the Explanatory Memorandum (see footnote N°15) the present market share of the four types of ballasts was in 1994 as follows: “high-loss” (class D) ballasts had a market share of 15%; “conventional” (class C) ballasts represented 65% of the market; “low-loss” (class B) ballasts had a market share of 15%; and electronic ballasts had a market share of 5%. It has been evaluated that if the proposed minimum efficiency requirements were not introduced (i.e. in the Business as usual Scenario) in year 2010 the four classes would have the following market share: class D 5 %, class C 20 %, class B 25%, electronics ballasts 50 %. With the introduction of the proposed efficiency requirements it is expected to have the following market share: class B 20 %, electronics ballasts 80 %.
The main cost to industry to comply with the proposed Directive is the cost of setting up of new production lines for more efficient ballasts; moreover there are also some cost to retrain staff, which however is smaller by some order of magnitude.
From discussion with manufacturers it emerged that the cost of converting a production line designed for production of class C ballasts (for about 1 million pieces per year) to produce class B ballasts is about 1 M_; for a new line for the production of electronics ballasts (for about 1 million pieces per year) the cost is about 3 M_.

Therefore the main cost to industry can be evaluated in the difference between the BaU scenario and the proposed scenario. Since about 40 Million additional pieces of electronics ballasts will be manufactured, the main compliance cost for industry is about 120 M_. Generally a production line lasts for about 20 years and therefore it is expected that this cost will be recovered through the higher market price of class B and electronic ballasts.

There will be an additional (positive) impact on the steel industry which would face a higher request for steel coming from the ballasts market, since the change from conventional to low loss ballasts will cause a higher use of magnetic steel. The conclusion is that the proposed efficiency requirements will surely lead us to an increase of labor both in the production of raw materials and of ballasts. In addition, there will be a demand for new production machines and the conversion of the existing ones.

As the low efficiency ballasts are mainly imported from Central and Eastern European countries, the proposed Directive will increase the market share of Community manufacturers. Community manufacturers will produce a better quality product and therefore the present proposal will strengthen their competitive edge in markets outside the Community. Moreover several countries outside the Community are considering introducing efficiency requirements and other actions to promote electronics ballasts. The present proposal would accelerate the transition of the Community industry towards the production of electronic ballasts.

Electronic ballast manufacturers will also be positively affected by the proposal, as the market share of electronic ballasts will increase. However since the electronic ballast is a mass produced good with highly automated production process, any impact of increased production of electronic ballasts would have a small impact on employment; the second aspect that characterizes the electronic ballast sector is that it is manufactured in countries with low labor costs such as Mexico and the Far-east. Therefore there will not be any significant impact on the Community employment.

All SMEs use fluorescent lighting in their premises (offices, workshops, shops, factories, etc.). The introduction of the proposal will results in the use of more efficient ballasts, thus resulting in a reduction of the electricity cost. As the proposed efficiency improvements will have a pay back period of less than 2 years, there will be a net economic benefit for all fluorescent lighting users.

The benefits to fluorescent light users are by year 2010 electricity savings worth about 250 M_ per year; this is without considering the additional benefits of the avoided CO_2 emissions.

3. DOES THE PROPOSAL CONTAIN MEASURES TO TAKE ACCOUNT OF THE SPECIFIC SITUATION OF SMALL AND MEDIUM SIZED FIRMS (REDUCED OR DIFFERENT REQUIREMENTS ETC.) ?

The efficiency improvements proposed are relatively easy to achieve and long adaptation periods have been foreseen, in order that no manufacturer would be unduly disadvantaged by the requirements proposed.

The long adaptation period before the introduction of each efficiency level has been foreseen especially for the small and medium sized firms, which may otherwise been penalized by the introduction of requirements, given the necessary investment involved in redesigning or modifying the ballasts not meeting the mandatory levels.

The Community ballast industry will be strengthened by the present proposal, as it is facing more and more the competition of low-quality imported ballasts, with very low efficiency and low prices.

4. CONSULTATION

List of the organizations which have been consulted about the proposal and outline their main views.

The Commission has worked for several years on the improvement of energy efficiency in fluorescent lighting in consultation with relevant organizations. A series of meetings were organized by the Commission to discuss the actions to improve efficiency and the criteria for setting energy efficiency requirements for ballast, to which all interested parties were invited. At the meetings, a number of representatives of the Member States, stressed the need to fully investigate the possibilities for a negotiated agreement by the industry to

improve appliance efficiencies. Several discussions on this topic were held between representatives of industry, and in particular CELMA, the European Association of Luminaries Manufacturers, and Commission officials assisted by various experts. Progresses were also discussed in a number of meetings held with the Member State administrations. Due to the highly competitive structure of the sector and the market share of imported ballasts any significant Community wide negotiated agreement was extremely hard to agree and the possibilities of a negotiated agreement was abandoned by manufacturers. A last offer idea of a negotiated agreement was made recently (December 1998) to CELMA, but the idea of a voluntary agreement has been definitively turned down by CELMA. After several meetings between Commission officials and manufacturers the proposed legislation was accepted.

5. MONITORING AND REVIEW

The Community ballast market will be monitored by the Commission in collaboration with Member States authorities and the European manufacturer association. As already indicated the main compliance costs for industry are the cost associated with in setting up new production lines for electronic ballasts. Therefore by monitoring the electronic ballasts market share, public authorities will have a feel of the impact of the Directive both in term of CO_2 emissions reductions and impact on industry.
Moreover both the cost/benefit analysis and some Member States have recommended a third step, in particular to phase out class B2 ballasts, because it is cost effective for users. The Commission believes that it is worth evaluating the impact on manufacturers and on users of the first two steps proposed, and only then decide if other measures (and in particular a new level of efficiency requirements) may be needed. To this end, it is indicated in Article 9 that the Commission will assess the impact of the present proposal and, in consultation with all interested parties, propose further measures, if needed.

6. CONTACT POINT

To receive a copy of the cost/benefit analysis study and for any inquiries, comments and to receive further information please contact:

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