COOL LABELS

The first three years of the European Energy Label

John Winward, Pernille Schiellerup, Brenda Boardman

Energy and Environment Programme
Environmental Change Unit
University of Oxford

ACKNOWLEDGEMENTS

This project represents a large, collaborative effort involving researchers from 37 organisations across all 15 Member States - listed inside. The work was co-ordinated in the Environmental Change Unit, but we owe a substantial debt to a large number of individuals and institutions. Within the ECU, we have been assisted by Kevin Lane, Harriet Griffin and Nick Banks. Brenda Boardman is sponsored by PowerGen, through St Hilda's College, and their assistance is gratefully acknowledged. The cover illustration is used with permission from the Electricity Association.

Our particular thanks go to DGXVII of the European Commission for enabling us to do this work. It has provided a fascinating insight into the problems of implementing policy, with lessons for many other initiatives.

A report to the European Commission on the first three years of the Community's energy labelling scheme, as it applies to cold appliances, as part of the statutory monitoring exercise required in Directive 94/2/EC.

The project was funded by:

The European Commission DGXVII under the SAVE Programme
(contract No. 4.1031/E/97-001) with additional support from

PowerGen

Published by the Environmental Change Unit

Printed September 1998

ISBN: 1 874370 21 4

COLLABORATORS

Chapter 2: Response of governments
Many individuals within Member State Governments took the time to reply to questionnaires, particularly members of the Regulatory Committee. Lorenzo Pagliano, Dipartimento di Energetica at Politecnico di Milano contributed a paper on the reasons behind the delay in implementing the labelling scheme in Italy.

Chapter 3: Dealer and supplier compliance
Altro Consumo of Italy co-ordinated the field work on compliance in retail outlets. The field work was carried out by Verein für Konsumenteninformation (Austria), Verbruikersunie/Association Belge des Consommateurs (Belgium), Forbrugerrådet (Denmark), Kuluttajavirasto (Finland), E.S.T.C.F (France), Stiftung Warentest (Germany), E.K.PI.ZO (Greece), Consumers' Association of Ireland, Editoriale Altro Consumo (Italy), Test Achats (Luxembourg), Consumentenbond (Netherlands), Edideco (Portugal), EDOCUSA (Spain), Konsumentverket (Sweden), and Consumers' Association (UK). The data was processed and analysed by the ECU.

CARTC in the UK re-analysed data held by them from previous testing work done for members of International Testing. Further analysis of these results was carried out by the ECU.

Chapter 4: Response of consumers
For the 'Recall survey', the ECU commissioned BMRB to co-ordinate the field work and tabulate the data. Field work was carried out by IFES Austria (Austria), AIM Nielsen Denmark), Taloustutkimus (Finland), SOFRES (France), MRB Hellas (Greece), MRC Ireland (Ireland), NIPO (Netherlands), IPSOS Portugal (Portugal), ECO Consulting (Spain), GfK Sverige (Sweden) and BMRB International (Great Britain).

For the 'Street survey' the ECU commissioned CfS International to co-ordinate the field work and tabulate the data. The field work was carried out by Nielsen Marketing Research (Germany), Metron R&C (Italy), Analyse Research & Strategy (Netherlands), ERYBA (Spain) and CfS International (United Kingdom). The data analysis was carried out by the ECU.

Chapter 5: Response of manufacturers
The ECU commissioned René Kemna at Van Holsteijn en Kemna to carry out the field work and their report was edited by the ECU. Senior staff from within the industry kindly gave of their time and experience.

Chapter 6: Response of retailers
The ECU commissioned Elizabeth Howard at Oxford Institute of Retail Management (OXIRM), University of Oxford to co-ordinate the field-work and produce a report on the basis of the fieldwork. The field work was carried out by OXIRM in Finland, Germany, Sweden and the UK, and by CERDA of Barcelona in France, Italy, Portugal and Spain. The report was edited by the ECU. Senior staff from within the industry kindly gave of their time and experience.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES Page

A report to the European Commission on the first three years of the Community's energy labelling scheme, as it applies to cold appliances, as part of the statutory monitoring exercise required in Directive 94/2/EC.

OVERVIEW

The Energy Label is used by consumers and they understand its message. It has the greatest influence on purchases when the consumer was already concerned about the use of energy in appliances and where most appliances in the shop are fully labelled. Across the EU, about a third of consumer purchases of cold appliances are now influenced by the Energy Label.

Manufacturers believe that the Label is an important policy tool and they positively support the principle of energy efficiency; they admit this is a change in perspective.

Few retailers provide positive support for the Energy Label: in the majority of cases they have not recognised the marketing opportunity that it provides. Retailers believe it is not and should not be their responsibility to promote the Energy Label or energy efficiency. However, 20% of shoppers state that they discussed energy consumption levels with retail assistants and in half the cases this was prompted by the retailer. This may be a case of retail management not recognising a new customer priority.

The number of appliances fully labelled in shops is low, though there are very large differences between national markets. The proportion labelled averaged 56% across the EU, varying from 17-94% in different Member States. Unlabelled (or incompletely labelled) appliances in shops are evidence of a lack of commitment by either manufacturers or retailers or both. There is also uncertainty about the accuracy of the manufacturer's information on many labels. Enforcement of the legislation by Member States has been minimal.

Both manufacturers and retailers are more dilatory than would be anticipated with a scheme that is mandatory and enshrined in legislation.

As a result, the effect of the policy is diluted: consumers are not able to benefit as intended and the savings of electricity and carbon dioxide are well below the levels that could be achieved.

The Label is the foundation for several future policies, notably minimum standards of energy efficiency which come into force in September 1999. If the disagreement about the accuracy of the Labels persists, the effect of the minimum standards will also be undermined. If manufacturers' declarations are inaccurate, many products will qualify that should not.

The benefits of more efficient cold appliances are greatest in countries where the summer is particularly hot. At the moment the Energy Label has little effect on purchasing patterns in the southern countries and is a much greater influence in northern countries, where there is a longer history of concern about energy use. Appliances on sale in the southern countries are also less likely to be labelled than those in the north.

It may not be possible to influence more than about 60% of shoppers, if only because the limited range of models in some retail outlets and inflexible priorities (eg dimensions) may reduce the consumer's choice to a single appliance. At present, nearly a third of all purchases were influenced by the Energy Label. This could, probably, be doubled through the full labelling of all appliances and promotional campaigns.

Member States are responsible for adopting the framework directive and implementing directives into domestic legislation and bringing them into force.

With the exception of Italy, all Member States have implemented Directive 94/2/EC, so that the Energy Label on cold appliances is mandatory. Although the Italian Government passed the Directive into law in April 1998, no deadline has been given for the Energy Label to become mandatory in Italy.

In four Member States - Austria, Denmark, Greece, and the UK - the Energy Label was mandatory by 1 January 1995 (the date stipulated in Directive 94/2/EC). By the end of 1995, 55% of the EU population lived in countries that had implemented the Directive and this extended to 82% by the end of 1997.

Member States shall take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this Directive.

The Energy Label is usually provided by suppliers (manufacturers) to dealers (retailers) in two separate parts. The process appears unnecessarily complex and results in confused responsibilities: each group blames the other for the problem of incomplete Labels. These may be temporary problems, which have taken a long time to sort out, or the administrative framework could be improved. Enforcement agencies declare similar uncertainties about the precise responsibilities of dealers and suppliers.

DEALERS
Dealers are obliged to ensure that each appliance offered for sale has the full Energy Label (both the colour background and the data strip) clearly visible.

By summer 1997, only 56% of cold appliances in shops across the EU were fully labelled. At Member State level, the range is from 17-94%, with only three Member States (Denmark, the Netherlands and the UK) having more than 70% of appliances fully labelled.

There has been no research into how consumers choose between two appliances of which only one has an Energy Label, so the real impact of partial compliance is hard to identify.

In general, small independent stores have fewer machines fully labelled than chains or buying groups, though the difference is not great. Countries with a large number of smaller retail outlets (Portugal, Greece and Italy) have a harder enforcement task in comparison with countries where there are more large stores and chains (Finland, the Netherlands, UK).

The proportion of correctly labelled machines in different Member States is not correlated with the date of implementation: Germany, the most recent Member State to comply, has a higher compliance level than Greece, which implemented the scheme at the start in January 1995.

Compliance levels, per retail outlet, varied from 0-100%, indicating a strong role for the retailers. One Irish retailer refuses to sell a machine without the correct Label. Some retailers are very supportive, eg Boulangère and Scottish Hydro Electric, but these appear to be rather isolated examples.

Only 5 out of 16 mail order catalogues fully comply with the Directive. But mail order is a small percentage of the total market and most catalogues carry some information about energy use, though not in the format required by the Directive.

Monitoring dealer compliance is relatively easy, as it involves visual inspection in the retail outlet. It is only sensibly undertaken when the scheme has been in force for some time, so some Member States have still to fulfil this obligation. Much of the monitoring has been in the form of single or targeted surveys and the level of effort has been particularly high in Denmark, Ireland, the Netherlands and Sweden.

Enforcement is seen by Member States to involve education and gentle persuasion, at least initially. No formal prosecution of a dealer was reported for displaying unlabelled cold appliances.

Monitoring retailers is clearly the responsibility of individual Member States and, as there are few international retail chains, collaboration between Member States is unlikely to be beneficial.

The level of compliance correlates strongly with the ability of consumers to recall the Label: the more appliances are labelled, the more people remember the Label. Whether the Label actually influences the choice of appliance depends largely on attitudes to energy consumption; these vary from country to country. Overall, there is a correlation between the proportion of appliances that are labelled in the shops and the proportion of consumers who say that their purchase was influenced by the Label. This emphasises the importance of enforcing the scheme.

SUPPLIERS

Monitoring the accuracy of manufacturers' claims is more difficult and expensive, requiring identification of Labels that might be inaccurate and independent testing to verify the data. Inaccuracies in the Label can only be identified by other manufacturers or by independent test laboratories - consumers have no way of verifying the information displayed.

Cold appliances are tested under EN 153. If the declared values are challenged, the verification procedure allows tolerances of 15% in declared energy use and 3% for volume. If these tolerances are combined, the efficiency index could be 17.25% lower than the declared value: equivalent to up to two classes on the Energy Label.

Although the Directive empowers Member States to demand technical information from manufacturers to support the information shown on the Label, only four have done so: Denmark, Greece, the Netherlands and the UK.

Only a little over a third of appliances tested by independent laboratories (mainly CARTC) were shown to be in the energy class declared on their Label. A quarter of the tested appliances show a discrepancy of two, three or four classes on the Label - always towards higher efficiency (eg from D, E or F to B).

In 41% of cases, the CARTC figures differed by more than 15% from those reported by manufacturers and one in five machines tested by consumer groups showed a variation in electricity consumption greater than 25% from manufacturer's information on the Label.

Over time, the discrepancy between the results obtained by manufacturers and by independent test laboratories seems to be reducing, but only very slowly: between 1994-97 the proportion with less than 15% difference rose from 55-66%. This still means that a third of appliances tested in 1997 exceeded the permitted energy tolerance.

Whilst some of the discrepancies could be due to the use of tolerances by the manufacturers, some must reflect different methods of testing. The effect is that the declared value no longer represents an average machine.

The Commission has instituted a consensus-building exercise to minimise differences in the test procedure: the same machines are being tested by the same people in a variety of laboratories, both independent and manufacturers'. This will help to ensure that the remaining differences in results are there by choice.

CECED has introduced a self-policing procedure for the industry, which allows one manufacturer to challenge the values declared by another manufacturer. At least one manufacturer (Bosch-Siemens) is using this procedure. Although this is a helpful development, it does not yet seem to be widely used, and the results are not made public.

The Dutch are working with independent test laboratories and undertaking formal verification procedures as part of an informal network developed by Denmark, Ireland, the Netherlands and Sweden to exchange information and reduce the costs to individual Member States. The manufacturers trade internationally so there are benefits from networking by the enforcement agencies.

No Member State has taken formal legal action in the form of a prosecution relating to compliance with cold appliances. In the absence of challenges to the accuracy of the Label, consumer confidence may suffer, though at least three-quarters of consumers still trust the Label.

The combined effect of only 56% of machines being fully labelled at point of sale and only a third of the rankings shown on the Labels being correct (if data from independent test houses are accurate) mean that only about one in five machines in European retail outlets may be carrying a full and accurate Energy Label. The framework directive made labelling mandatory, in order to avoid the consumer confusion that would result from a voluntary scheme. The implementation of the present scheme is only partially achieving the aspirations of the original Directive.

Member States are responsible for controlling the display of other labels, marks, symbols and inscriptions which do not comply with the requirements of the directive and which are likely to mislead or confuse consumers.

No formal action was reported to have been taken by Member States on confusing or competing labels.

Member States are responsible for ensuring that the introduction of the system of labels and fiches concerning energy consumption is accompanied by educational and promotional information campaigns aimed at encouraging more responsible use of energy by private consumers.

A number of Member States (notably Denmark, Finland, France, Ireland and Portugal) have complied with the Directive by implementing comprehensive information campaigns. There are no data on changes in consumer attitudes over time, so it is not possible to identify the effect of these campaigns.

In other countries, the Government has been able to have a minimal role: in Germany, the Government did not promote the Energy Label, as the trade association for German manufacturers (ZVEI) had promoted it strongly, before the legislation was implemented. In all countries, according to retailers, manufacturers have been the main source of supporting information about the Energy Label.

Links between the Energy Label and other policies

The Energy Label provides the basis for other policies, both existing, such as rebates, and future, such as minimum standards. Inaccuracies in the labelling of appliances will severely undermine the effectiveness

of these dependent policies - less energy will be saved, and manufacturers who make honest declarations will be unfairly disadvantaged.

Other Energy Labels: by the middle of 1998, further directives had come into force covering electric tumble dryers (Directive 95/13/EC), washing machines (Directive 95/12/EC), combined washer-dryers (Directive 96/60/EC) and dishwashers (Directive 97/17/EC). An implementing directive (Directive 98/11/EC) on light bulbs will come into force in 1999 and, after a voluntary interim period, become mandatory in 2001. Consumers are expected to become more aware of Labels as a result; this will be particularly true when light bulbs are labelled, as they are a frequent purchase.

The Energy Label on cold appliances is to be revised by the end of 2000, with the Directive coming into force in 2001. There will be 7-8 years between the first and second cold label directives. For the immediate future, the success of the labelling scheme for cold appliances will depend upon the way the present legislation is implemented by Member States.

Rebates: Some Member States, and some utilities, have provided rebates on efficient cold appliances; these are seen by manufacturers to be particularly effective.

Consumers in higher socio-economic groups are particularly likely to concentrate on the energy use of different appliances when making a purchase; less affluent consumers concentrate more on the purchase price. In recognition of the latter, the UK, the Energy Saving Trust has provided a rebate so low-income households with an inefficient, old refrigerator can obtain an energy efficient one (B/C). People in lower socio-economic groups need assistance, if they are to obtain efficient appliances and benefit from lower fuel bills.

Product lists and ELDA database: these provide information to help consumers rank models according to their priorities and enable life-cycle costs to be calculated (ELDA). Although many retailers point to the need to translate energy differences into cost-saving terms, few schemes are using the information from the Energy Label to provide these additional consumer services.

Minimum standards: After September 1999, it will be illegal to sell a cold appliance that is labelled D or lower, except for chest freezers where only Fs and Gs can no longer be put on the market. Almost a third of the models analysed for this report will meet the minimum standards using manufacturers' data, but would not if the data from independent tests were used instead. There are similar problems with absent Labels: the presence of a complete Label enables consumers and enforcement officers to confirm that the model should still be on sale. Inaccurate or absent Label information threatens to negate many of the benefits of this new policy.

RECOMMENDATIONS

COMMISSION

Revisions to the Energy Label for cold appliances will allow several of the procedures to be tightened and to clarify the intentions of the policy. This will require the framework directive to be revised.

Greater clarity is needed in the test procedure documents about what the manufacturers are to declare. If the values are intended to be those of an average model, then the process of defining 'average' should be clear: for example, the average of six models tested. Alternatively, the declared values could be the maximum (energy) and minimum (volume). Then all machines sold would be at least as efficient as the energy efficiency category on the Label and possibly more so. With the present system, the reverse is true: the energy efficiency category displayed may only be attained by the best machines from the production run.

Lower levels of tolerances could be adopted in the next revision, to encourage manufacturers to reduce variability in the production process.

Tighter definitions will make it easier to enforce the legislation, if a Label is thought to be inaccurate, and to make sure that the checking procedure would stand up to legal scrutiny.

The amount that a manufacturer would be fined for an inaccurate label is negligible (about 3,000 ecu). An alternative method would be to link the payment to the level of unnecessary energy consumption resulting from an inaccurate Label. For instance, if a fridge-freezer is labelled B instead of D, the consumer is using about 100 kWh pa more than implied from the Label. Over the 10 years (or more) that the consumer owns this appliance, at the European average of 0.15 ecu /kWh, this amounts to 150 ecu per machine sold with an incorrect Label. With high volume machines, selling in several Member States, this would represent a substantial penalty for the manufacturer.

There appears to be no requirement that consumers are provided with the full Energy Label with the machine they purchase. With the present system, the Energy Label has to be complete on the machine displayed in the showroom: the two parts of the Energy Label are not combined at any other time. This limits the opportunity for consumers to learn, understand and confirm the figures on the Label.

The information in mail-order catalogues and in the fiche in brochures should be accurate, up-to-date and properly presented, as this enables the consumer to obtain an efficient machine, even though they cannot see a fully-labelled appliance in the shop. Advice to mail-order companies on how best to incorporate the information required would be helpful.

The Commission could require the public deposition of data by manufacturers, so that the test results are available for public consultation. If there is a designated centre in each Member State or centrally, then this can confirm that the data are consistent and incorporated into a website. At the moment, the ELDA groups in Denmark and Scotland, the DECADE team in Oxford and others spend considerable amounts of time checking inconsistent data with manufacturers (ie the declared net volume, annual consumption and energy efficiency category cannot all be correct). Uncertainty about the consistency of the results identifies an appliance that should be tested at an independent centre.

Manufacturers should also nominate a contact, within each Member State, who is responsible for all issues concerned with the Label, including supply of the Labels, accuracy of information and all compliance issues. These contacts should be provided to each enforcement agency.

In preparation for a second round of Labels, the date of issue should be printed on the Label, so it is clear which is the old and which the new. The design of the next Label could consider providing a space for the cost of electricity consumption, to be completed by the retailer.

The Commission should encourage Member States to enforce directives more promptly: 3.5 years after the date on which the Directive was to come into force, there is still one Member State which has not set a date.

MEMBER STATES

There is a need for vigorous enforcement and no leniency when a manufacturer’s declared values are shown to be incorrect. The present system allows manufacturers to gamble, because they are unlikely to be exposed for making false declarations.

The informal network between four Member States could be extended so that action on inaccurate Labels is co-ordinated. Individual Member States could specialise in monitoring individual manufacturers.

The proportion of appliances in retail outlets that carry a full label should be monitored annually and reported to the Commission, so that the effect of policy can be identified over time.

More positive action should be taken to publicise the benefits of energy efficient cold appliances in those countries which experience hot summers.

The lessons learned from this monitoring study should be applied to the way other labelling directives are implemented, so that the opportunities to reduce energy consumption are realised as quickly as possible.

Maximum benefits are achieved when more energy efficient appliances are produced by manufacturers, stocked by retailers and bought by consumers. All three links in this chain need to be strengthened.

CHAPTER 1: CONTEXT

Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances required the European Commission to make an assessment of the implementation and results of the directive after three years of its operation. The present study forms part of that assessment. The study reviews the first three years of the European Community's energy labelling scheme, particularly as it applies to cold appliances. The implementing directive on this group of appliances was the first to come into force. It examines how successful the scheme has been in two different senses. First, it examines the implementation and promotion of the scheme: have Member States translated the relevant directives into their national laws in a timely way? Are Labels actually being applied to domestic refrigeration appliances in the shops? Are the Labels accurate? Has the labelling scheme been properly supported by advertising and promotion efforts? Secondly, it examines how the different actors - governments, regulatory agencies, retailers, manufacturers and consumers - have responded to the scheme, how they now view it, and how, if at all, it has changed their behaviour. This study has not included any attempt to measure directly changes in actual sales of cold appliances following the introduction of Labels; that is being examined in a parallel study, carried out by separate contractors.

European market for cold appliances

In 1996, there were 140 million households (Eurostat 1997) in the Community with a total stock of 224 million cold appliances: an average of 1.6 per household. These appliances used 108 TWh of electricity in 1996 (Paul Waide Consulting 1996) and 17.5 million new cold appliances are purchased annually.

Background to the labelling scheme

The present energy labelling scheme is not the first attempt to create a Community-wide framework for energy labelling. Directive 79/530/EEC of May 1979 had established a voluntary framework but although it covered a range of domestic appliance groups, differences over technical measurement standards meant that only the implementing directive on electric ovens was approved (Directive 79/531/EEC). According to the Commission, this meant that interest in the scheme, and therefore its impact, was low (Kestner 1991). The weakness of the scheme, and the growing interest of many Member States' governments in environmental measures aimed directly at domestic consumers, meant that different countries (including France, the Netherlands, the UK and Denmark) began to set up their own independent labelling schemes. This threatened to erect barriers to trade, in direct conflict with the EC's primary purpose of creating transparent internal markets, and threatened to provide a potential source of confusion to consumers (Kestner 1991).

The current framework directive was developed at a time when many Member States and the Commission itself were starting to pay greater attention to limitation or reduction of CO_2 emissions, in the light of an emerging scientific consensus about anthropogenic climate change. In June 1989 the Energy Council adopted a *Community action programme for improving the efficiency of electricity end use* (PACE). The PACE programme envisaged five different types of action, including:

> action to improve the quality and availability of information to electricity consumers and equipment specifiers concerning the efficiency of electrical appliances and equipment and their efficient use; ... provision by manufacturers of data relating to appliance and equipment efficiency, including

> improvement of the labelling system; ... adoption of directives by the competent authorities, in this context, regarding the provision of information to the consumer (European Council of Ministers 1989).

On 29 October 1990 a joint Energy and Environment Council adopted the target of returning total CO_2 emissions to the 1990 level by 2000 for the Community as a whole. There was agreement that national and EC policies on energy should be reviewed to ensure that they were helping to promote "... energy conservation and efficiency improvement in the use of energy, in particular through promoting diffusion of energy-efficient end-use devices and improving the efficiency of mass produced goods," (General Secretariat of the Council of the European Union 1990).

In October 1991 the Council adopted the SAVE Action Programme "to give new impetus to the promotion of energy efficiency in the European Union" (Bertoldi 1994). Among the goals of SAVE were the implementation of the PACE programme. It was anticipated that the combined effect of measures relating to household appliances (labelling and minimum standards) "... should result in savings of primary energy consumption of around 12 mtoe by the year 2010. This would imply a reduction in CO_2 emissions of about 25 million tonnes in 2010" (Kestner 1991).

Directive 92/75/EEC of September 1992, which replaced the earlier framework directive, has the twin objectives of encouraging energy savings through greater consumer understanding and of ensuring that measures taken in this area by the Member States do not hinder trade. The Treaty basis for the directive is Article 100a "... measures for the approximation of the provisions ... in Member States which have as their object the establishment and functioning of the internal market", but the preamble of the directive also cites Article 130r of the Treaty "... requiring the prudent and rational utilisation of natural resources".

Article 1(1) of the directive states that its purpose is:

> the publication, particularly by means of labelling and of product information, of information on the consumption of energy and other essential resources, and additional information concerning certain types of household appliances, thereby allowing consumers to choose more energy efficient appliances.

The framework directive sets out the way this information should be presented to the consumer in broad terms while specific implementing directives set out the required information for each group of appliances covered by the scheme in more detail. The framework directive also sets out which appliance groups are covered by the labelling scheme, although further types of domestic appliances may be added:

- cold appliances;
- wet appliances;
- ovens;
- water heaters and hot-water storage;
- lighting sources;
- air -conditioning.

The labelling scheme covers appliances offered for sale, hire, or hire-purchase, whether through conventional stores or by mail-order, catalogue or other means, but excludes second-hand appliances.

The implementing directive for electric refrigerators, freezers and their combinations (Directive 94/2/EC) - the cold appliances - came into effect on 9 March 1994 (Appendix 1). Although the framework directive in principle applies to all fuels, this implementing directive is limited to mains-operated electric appliances. By the middle of 1998, further directives had come into force covering electric tumble dryers (Directive 95/13/EC), washing machines (Directive 95/12/EC), combined washer-dryers (Directive 96/60/EC),

dishwashers (Directive 97/17/EC) while an implementing directive (Directive 98/11/EC) on light bulbs will, after a voluntary interim period, become mandatory in 2001.

The Label

The labelling scheme is based on an 'energy efficiency index' generated by comparing the appliance with the average European model when the bands were set at the end of 1993, using values that vary according to the category of appliance. This average is constant, and was set at the point dividing classes D and E, to allow for efficiency improvements over time. The energy efficiency index is of course continuous, while the Label groups each appliance into one of seven classes. The class into which the individual appliance falls is determined by segmenting the energy efficiency index as outlined in Table 1.1. The label classes will be revised in 2001.

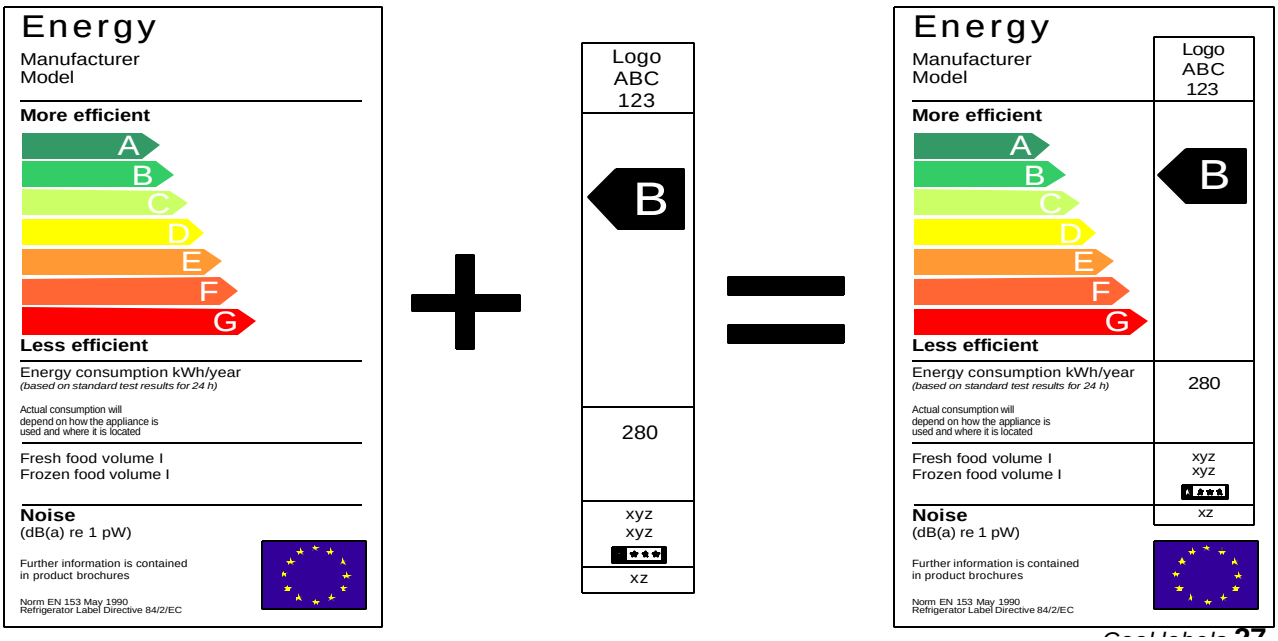
Table 1.1 Energy efficiency index and energy efficiency classes

Energy efficiency index: I			Energy efficiency class
	I	< 55	A
55 ≤	I	< 75	B
75 ≤	I	< 90	C
90 ≤	I	< 100	D
100 ≤	I	< 110	E
110 ≤	I	< 125	F
125 ≤	I		G

Source: European Commission 1994

The energy efficiency index is derived from dividing annual energy consumption by the net volume of the appliance (adjusted to equalise for different temperature zones). It effectively reflects the consumption in kWh per litre of net volume. Thus it is possible to compare appliances, even though they are of varying sizes with different proportions of cool and frozen space.

The Energy Label communicates the relative energy efficiency of models through colours, arrows and the alphabet (Figure 1.1). The A-G scale ranks appliances from the best (A) to the worst (G); green denotes 'more efficient' and red 'less efficient'; the arrows show relative energy efficiency for a given level of service.



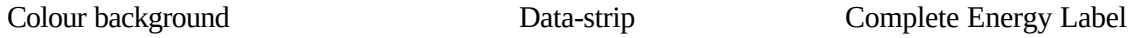


Figure 1.1 The Energy Label and its components

There are two parts to the Energy Label : a colour background and a data-strip. These often come separately and have to be combined when they are stuck on the machines. A few manufacturers print the Label as a single entity. The colour background is generic and can be applied to any cold appliance (provided it is in the correct language). The data-strip contains model-specific information and is applied to all identical models irrespective of the language of the destination market. The following information is required in Directive 94/2/EC:

- supplier's name or trade mark;
- supplier's model identifier;
- energy efficiency class;
- Eco-label (if awarded to that appliance);
- energy consumption;
- net cold storage volume (i.e. space operating at > - 6°C);
- net frozen storage volume (i.e. space operating at ≤ - 6°C);
- star rating of frozen storage compartment;
- noise (optional).

The Energy Label has to be supported by an information fiche, a standard table of information relating to a particular model of appliance. The fiche has to be contained in all product brochures and if these are not provided, with other product literature supplied with the appliance. According to a Commission official:

> the reason for having two ways of providing the information is to cater for a variety of approaches to buying household appliances. Some customers, particularly those replacing worn-out appliances, will make a rapid choice without analysing in detail the relative technical merits of the competing appliances. The only hope of influencing this type of consumer is to present them with a simple, eye-catching label, that will allow a rapid and clear comparison of the appliances on offer. Other customers will take longer to make their choice taking time to compare the relative merits of each appliance and relate this to their personal requirements. The fiche is intended to help the latter type of customer who will also be interested in comparative tables (Kestner 1991).

A third mechanism set out in the framework directive is product information in mail-order catalogues. The information to be included in mail-order catalogues is similar to that required on the standard label.

Institutional Responsibilities

Responsibility for the implementation of the labelling directives falls mainly on three parties: Member States, suppliers, and dealers. The main duties placed on each of them are set out in Table 1. 2.

Member States

The duties placed upon Member States are set out in Article 7 of the framework directive. Member States have four main duties. Firstly, Member States are responsible for implementing the framework directive and implementing objectives in domestic legislation. The domestic provisions implementing the framework directive were required to come into force on 1 January 1994 and for the directive for cold appliances, on 1 January 1995. Secondly, Member States have to ensure the compliance of dealers and suppliers although under the principle of subsidiarity, the nature of the monitoring and enforcement system is left to Member

States to determine. Thirdly, Member States are responsible for controlling the display of other labels, marks, symbols and inscriptions relating to energy consumption which do not comply with the requirements of the directives and which are likely to mislead or confuse consumers, although the legislation specifically excludes other Community or national environmental labelling schemes. Finally, Member States are responsible for ensuring that the introduction of the Energy Label is properly publicised.

Table 1. 2 Institutional responsibilities

Actor	Duty	Directive 92/75/EEC	Directive 94/2/EC
Member States	**1.** Translation into Member State law coming into force on 1 January 1994 and 1 January 1995 respectively.	Article 14.1	Article 4.1
	2. Take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this directive.	Article 7a	Article 3
	3. Take all necessary measures to ensure that other labels, marks, symbols and inscriptions likely to confuse or mislead, and which do not fulfil the requirements of the framework directive and the implementing directive, are prohibited.	Article 7b	
	4. Take all necessary measures to ensure that the introduction of the labelling scheme is accompanied by educational and promotional information campaigns aimed at encouraging more responsible use of energy by private consumers.	Article 7c	
Suppliers	**1.** Supply of the Label to the dealer free of charge.	Article 4b	
	2. Supply of the fiche to the dealer. This shall be contained in all product brochures and if these are not provided, with other product literature provided with the appliance.	Article 3.2	
	3. Responsibility for the accuracy of the Label.	Article 3.3	
	4. Responsibility for the accuracy of the fiche.	Article 3.3	
	5. Establishing technical information sufficient to enable the accuracy of the information contained in the Label and the fiche to be assessed. Required in Directive 92/75/EEC and described in Directive 94/2/EC.	Article 2.4	Article 2.4
	6. Make the technical information available for inspection purposes for a period of 5 years after the last product has been manufactured.	Article 8.2	
Dealers	**1.** Placing the Label correctly: on the outside of the front or top of the appliance, in such a way as to be clearly visible	Article 4a	Article 2.3

	and not obscured.		
	2. Attaching a Label in the appropriate language.	Article 4a	
	3. Provision of required information with mail order and other distance selling.		Article 2.5

Earlier versions of the directive had placed additional responsibilities on Member States, which were lost as the draft directive was amended in the legislative process. Measures that were lost included a responsibility to take all necessary measures to ensure that "... any label ... complies in all respects with the requirements" of the proposed directive (original Article 7b) and to take measures to ensure that, in cases where the supplier failed to fulfil their obligations, "... dealers would be able to take appropriate legal action to enforce compliance, and recover damages" (original Article 7d), and where the dealer failed to fulfil their obligations, "that actual or potential customers, or other interested parties, are able to take appropriate legal action to enforce compliance and to recover damages" (original Article 7e). According to the Chairman of the Committee on Energy, Research and Technology at the European Parliament, these amendments weakened the draft directive so that the "... scope available for taking legal action over failure to comply with labelling requirements has been severely undermined by the common position, as compared with what we had before" (European Parliament 1992). Member States were also obliged, in earlier drafts, to verify compliance and to supply the Commission with any appropriate information and statistics on the operation of the system.

Suppliers

The supplier is defined in Article 1.4 of the framework directive as "the manufacturer or his authorised representative in the Community or the person who places the product on the Community market". The supplier is responsible for the accuracy of the Label and the fiche, and for supplying the complete Label, as well as the information fiche, free of charge to the dealer. The supplier is also required to establish technical documentation for every relevant appliance offered so that the accuracy of the information contained in the Label and the fiche can be assessed.

Dealers

The dealer, defined in Article 1.4 of the framework directive as "a retailer or other person who sells, hires, offers for hire-purchase or displays household appliances to end-users", is responsible for attaching the appropriate Label to the appliance, in the correct language.

Regulatory Committee

Article 10 of the framework directive establishes a committee composed of the representatives of Member States and chaired by the representative of the Commission. This Committee, commonly known as the Regulatory Committee, was established to assist the Commission in progressing the labelling scheme. The representative of the Commission submits drafts of any measures to be taken under the framework directive to the Committee. Such measures principally cover the specification of new groups of appliances to be labelled, either by introducing specific implementing directives, or by amending the list of appliances covered by the framework directive itself. The Regulatory Committee delivers its opinion on the proposed measures on the basis of 'qualified majority voting'. If the Regulatory Committee votes down a Commission proposal, that proposal is referred to the Council of Ministers.

The energy label in the context of market transformation

The Community energy labelling scheme forms part of an approach to environmental policy design known as 'market transformation' - a strategic process which, through specific interventions, aims to shift a particular market towards more efficient technologies. For more detail on market transformation policy see previous DECADE publications (in particular DECADE 1997a, DECADE 1997b and Palmer and

Boardman 1998). The intention behind the energy labelling scheme is to change consumers' purchasing behaviour to favour more efficient appliances, leading over time to improvements in the stock of appliances in consumers' homes. It should be noted that market transformation will not necessarily lead to overall energy savings. The total stock of appliances may expand (particularly in countries where ownership levels are still comparatively low), or consumers may choose to have increased levels of 'service' - they may start to use more than one refrigerator or to favour frost-free models. If market transformation is successful, however, the total energy used in the sector will be lower than it would have been if no intervention had taken place.

Market transformation policies work with the grain of consumer markets and recognise the dialectical relationship between buyers and sellers. On the one hand they seek to encourage manufacturers to produce more efficient appliances so that consumers will have a greater choice. On the other, they seek to encourage consumers to favour more efficient appliances so that manufacturers will have an incentive to produce them. A range of market transformation policy instruments are available, including standards, financial incentives and procurement, as well as information instruments such as labels.

Market transformation policy requires the existence of a standard test protocol (sometimes also called a test procedure) which establishes a standard way of measuring energy efficiency as a function of the energy consumption for a given service level of an appliance. The importance of the standard test protocol is to allow differentiation between models in terms of their energy efficiency. Once there is a reproducible procedure for measuring energy efficiency it becomes possible to introduce labels which signal to the consumer the difference between similar looking models, to limit the consumer's choice to those models which meet the criteria set down in standards, and to create incentive programmes such as rebates to promote more efficient models to the consumer. It also becomes possible to introduce procurement programmes which challenge manufacturers to produce new models, substantially more efficient than those already on the market, on the basis of a relatively secure market for the new models. Although in principle it is possible to have standards, rebates and procurement without labelling, because the test procedure on its own allows for the differentiation between models, labelling has the potential to enhance the other market transformation instrument through improving the information available to consumers.

There are two types of labels, endorsement labels and comparison labels. The endorsement label divides models into two categories: those which meet specified criteria and those which do not. Only models which meet the criteria may be awarded a label. Endorsement labels are normally voluntary: it is expected that manufacturers whose products are good enough to win a label will wish to display that fact. The Community Eco-label is an example of an endorsement label. In contrast, the comparison label is multiple-category. All models are awarded a label, and are classed from 'good' to 'bad'. Comparison labelling schemes, such as the Energy Label, are meant to show up bad models as well as good ones. To be effective, comparison labels have to cover *all* goods on the market, and are therefore normally compulsory. The framework directive recognises this explicitly: in its preamble, the need for a mandatory scheme is justified on the basis that a voluntary scheme could result in confusion among consumers, as not all of the relevant appliances would be labelled or supplied with standard product information.

Consumer Choice and Market Intervention

Two basic assumptions underlie the EC approach to most aspects of industrial policy: first, that 'economic efficiency' should be maximised; secondly, that efficiency is best maximised through the application of 'market principles'. It is recognised, of course, that there are a variety of human transactions that are appropriately situated outside the marketplace. However, the purchase of domestic appliances is part of the market. The fact that the EC feels moved to intervene in the market for refrigeration appliances therefore suggests that it believes that the market is not performing properly. The labelling directives in

particular can be classed as market perfecting in intent. This is made explicit in the preamble to the framework directive: "... in the absence of this information, the operation of market forces alone will fail to promote the rational use of energy for these appliances" (Directive 92/75/EEC).

Two types of 'market failure' have been posited in the debate about the energy efficiency of white goods: the presence of externalities and the absence of perfect information. In order for markets to work satisfactorily, all the costs and benefits of a particular transaction should accrue to those individuals directly involved. Environmental costs are normally 'external' - i.e. they are paid neither by the buyer nor the seller but instead by individuals who were not involved in the original transaction, by the wider community, or by future generations. It is the presence of externalities that drives most environmental policies and that is used to justify intervention in energy markets. Interventions range from direct attempts to re-internalise costs to attempts to establish 'proxies' for the market pressures that would be applied if all costs were fully internalised.

The more specific market problem that labelling addresses is that of 'information failure'. In theory, properly-functioning markets require all the actors to be in possession of 'perfect information' about the transactions they engage in. Although this theoretical ideal is rarely found in the real world, it points towards two key questions that policy-makers ask: is there a significant information deficiency in a particular market? Is that deficiency leading to less-than-optimal outcomes?

The assumption that underlies framework Directive 92/75/EEC is that both of these deficiencies exist in the market for domestic white goods. The *prima facie* case for arguing that information failures exist is clear: the relative energy efficiency of different brands and models is not readily apparent to consumers. Without labels, objective information is available to consumers in two main ways: through the 'rating plates' usually found inside appliances, and (in most countries of the European Union) through comparative performance data published by independent consumer testing organisations. In practice, the first of these is difficult to find and interpret, the second is used by a relatively small proportion of the population (discussed in Chapter 4). Labels should be, by comparison, easy to use, universal and available at precisely the point at which consumers most need the information.

In order for the Labels to be effective, of course, it is important not just that the Labels are seen by consumers, but that a significant proportion of consumers respond to the information provided. The use of the term 'rational' in the preamble of the directive can be interpreted in a number of ways. At the level of the individual consumer, this can be interpreted as 'economic rationality'. Energy use is a derived demand - consumers do not wish to buy electricity itself, but rather the services that the electricity provides (in the case of refrigeration products this is cooling, mainly of food). Over the lifetime of an appliance the total cost of the services purchased consists of the initial price of the appliance, the cost of energy used and any incidental costs (for example later expenditures on repairs or servicing). Ideally, consumers should treat all these costs in an equivalent manner - for example future energy costs should be 'discounted back' at something approaching the opportunity cost of capital. If consumers really did act in this way, more energy-efficient appliances should command a price premium over less efficient products with a similar specification. In practice, the energy efficiency of competing models has normally appeared to be randomly associated with their prices in most markets (DECADE 1997a).

The labelling initiative is driven by the assumption that many or most consumers will intrinsically place a higher value on appliances with lower lifetime costs. Information interventions which make the lifetime costs more transparent are designed to correct the information failure, and thereby to tilt the market in favour of more efficient appliances. Of course, price and lifetime cost are not the only criteria by which consumers choose products. Instead, they are balancing a range of different characteristics, not all of which can easily be described in engineering or economic terms. There may be other reasons, particularly among groups with strong environmental concerns, for consumers to favour appliances which use less energy.

Consumers, retailers, manufacturers and national governments are all important in different ways in the process of market transformation. As noted above, market transformation tools are intended to encourage manufacturers to improve the efficiency of the range of goods they offer. Manufacturers need to plan their product ranges (and even more so, their research and development) in advance, and are therefore sensitive to possible future shifts either in consumer tastes or in regulatory rules. Retailers, too, are always looking for new ways of selling products and could 'amplify' emerging preferences for more efficient products. Although consumers are therefore the final arbiters of which products sell and which do not, the expectations of retailers and manufacturers will determine the range of goods available to those consumers. The expectations of manufacturers and retailers can also be expected to play a part in determining the success or failure of a labelling scheme: if retailers, in particular, perceive labelling to be helpful in selling appliances, they are more likely to ensure that staff are trained to help consumers use the Label.

Consumer preferences are not fixed in time. Consumers in modern societies are exposed to a range of commercial communications (advertising and other promotional techniques) aimed at influencing their beliefs and behaviour. As citizens, consumers are also, of course, open to influence from non-commercial sources, including friends, family, pressure groups and government. By requiring Member States to ensure that the introduction of the scheme is accompanied by information campaigns, the framework directive recognises that the ways in which products are promoted and advertised will help to shape consumer preferences, and that the messages sent out by government and its agencies will also have an effect on consumer perceptions.

report structure

In Chapter 1 the historical background and the policy context of the Energy Label has been set out and the framework of duties on Member States, suppliers and dealers created by the scheme has been described.

Chapter 2 reviews the support given to the energy labelling scheme by Member State governments through monitoring and enforcement action and information campaigns.

Chapter 3 is concerned with dealer and supplier compliance. The results of a Community-wide survey of the presence of the Label at the point of sale are presented, followed by an analysis of test data on cold appliances tested by the Consumers' Association Research and Testing Centre (CARTC) and the Danish Energy Agency.

Chapter 4 examines the response of the European consumer to the Energy Label through the analysis of two consumer surveys.

Chapter 5 and Chapter 6 describe how manufacturers and retailers view the scheme on the basis of interviews with senior managers.

Chapter 7 concludes and draws lessons for the future of the Energy Label.

CHAPTER 2: RESPONSE OF GOVERNMENTS

This chapter reviews the support given to the Community energy labelling scheme by governments in all fifteen Member States including formal implementation of Directive 94/2/EC in national legislation, ensuring that suppliers and dealers comply with the legislation and information campaigns. The legislative requirements on Member States were summarised in Table 1.2.[1]

SURVEY METHODOLOGY

In June and July 1997 a questionnaire was sent to the members of the Regulatory Committee. The questionnaire is attached in Appendix 2.1. The questionnaire was designed to collect background information, with the intention of seeking more detailed information through follow-up contacts with the members of the Regulatory Committee and other relevant institutions. The members for Germany and Italy were not initially contacted, since neither Germany nor Italy had at that time implemented the legislation. A separate study was commissioned in Italy to examine the reasons for non-implementation, and the member of the Regulatory Committee for Germany was subsequently contacted.

In total about thirty-nine 'institutions' were contacted, though in some cases these were different offices within the same Ministry (Appendix 2.2). Despite the thoroughness of the procedures used, the amount of information collected varied between Member States. The results therefore need to be treated with care; it is possible that the level of activity in some Member States is under-reported.

The questionnaire asked members of the Regulatory Committee a series of questions falling into three groups:

- the timing of formal legal implementation;
- the provisions made to monitor and enforce compliance of dealers and suppliers;
- details of government sponsored information campaigns.

The timing of formal legal implementation

Directives need to be translated into law in each Member State, a system intended to recognise the diversity of administrative systems within the Community. A directive imposes an obligation on Member States to achieve specified goals, while Member States have discretion over the precise means by which those goals are to be achieved in the context of their own national laws. States are required to introduce the necessary implementing national laws and administrative measures within time limits specified in the directive. The Commission is responsible for reviewing the implementation measures and may use a special procedure against Member States which it considers to have failed to implement a directive effectively.

[1] Earlier, more limited studies include a SAVE project by the Swedish Consumer Agency and NUTEK, *Communication Labelling* (SA/III/95/SWE), which compared the experience of the scheme in Sweden and Finland and to a lesser extent in Denmark. A subsidiary aim of that project was to give "a brief presentation of the energy labelling systems in Sweden, Finland and Denmark' and a 'presentation of the information activities in each country" (NUTEK and SCA 1997). However, its main purpose was "to provide a picture of consumer attitudes towards and awareness and knowledge of energy labelling and the factors which affect consumers' choice of white goods".

The framework directive on labelling required Member States to adopt the necessary provisions by 1 July 1993, and these provisions to come into force no later than 1 January 1994, while the implementing directive for refrigeration appliances required Member States to adopt the provisions necessary to comply with the directive by 31 December 1994 and to bring them into force no later than 1 January 1995.

All Member States, except for Germany and Italy, had implemented Directive 94/2/EC by the time the questionnaire was sent out during the summer of 1997 (Figure 2.1). However, implementation - the date on which domestic implementing legislation came into force - had been staggered over time. Four Member States - Austria, Denmark, Greece, and the UK - complied with the requirement to implement the directive by 1 January 1995. There are substantial differences in timing among the ten Member States which implemented after that date. Finland, France, Ireland, Portugal, Spain and Sweden implemented later in 1995, Luxembourg and the Netherlands in 1996, and Belgium at the beginning of 1997. In Germany, both the framework directive and Directive 94/2/EC came into force on 1 January 1998. There is still no date for Italy (see below).

The cumulative proportion of the EU population covered by Directive 94/2/EC is given in Figure 2.1. By the end of 1995 this amounted to 55% and 82% by the end of 1997.

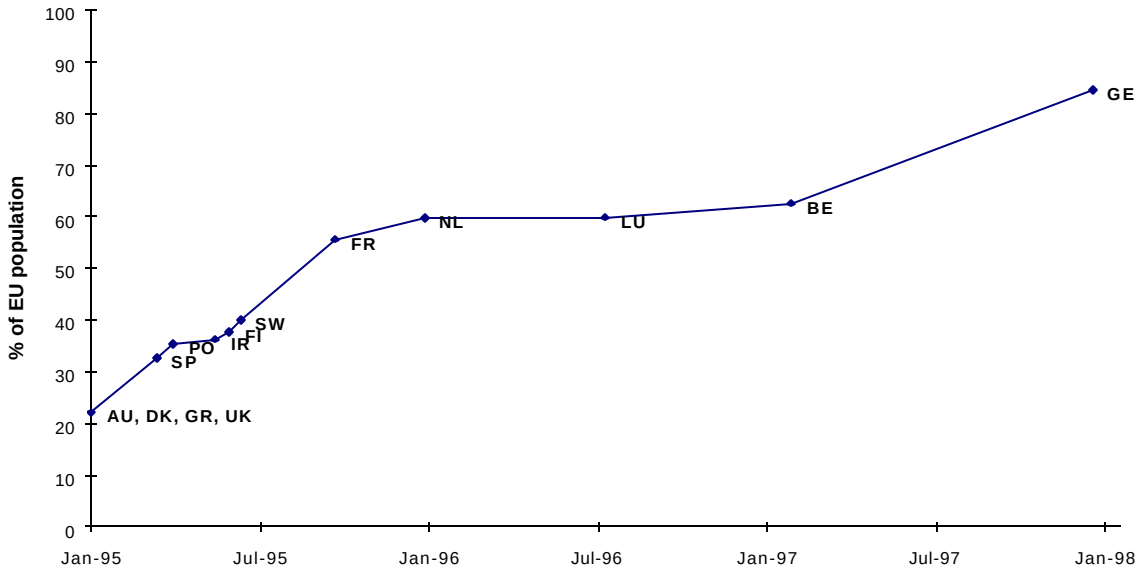


Figure 2.2 EU population affected, by date of implementation of Directive 94/2/EC

Source: Eurostat 1997 and Table 2.1

Italy

In Italy, none of the directives relating to the energy labelling scheme were implemented at the time of the survey. According to Alari *et al* (pers comm) this, in part, reflects opposition from within the appliance industry. They quote a private communication from within the Ministry of Industry which discusses lobbying by the industry to slow implementation of the directive. In particular, manufacturers with production centred on lower efficiency models feel they will be unduly affected by implementation.

Despite this opposition, the framework directive was implemented into national law through a presidential decree on 9 March 1998 (Pindar pers comm).

On 24 April 1998, Bill Number 1780-B was passed as Legge 24 Aprile 1998, n. 128, introducing into national law all Community directives issued in the years 1994-1997, including all the implementing directives for the energy labelling schemes (Alari *et al* pers comm). The bill has had a slow passage though the Italian Parliament as it covers a very broad range of issues, including legislation concerning the liberalisation and privatisation of the electricity utilities. These latter parts of the bill were opposed by some elements of the Italian Parliament and a number of amendments were introduced. Although Law no. 128 states that the European directives concerning energy labelling are to be implemented by ministerial acts which must respect the implementation date identified in the original European directives, effectively no deadline is given (Pindar pers comm).

Monitoring and enforcement of compliance

Member States are responsible for ensuring that suppliers and dealers comply with the legislation. The government ministries with overall responsibility for the implementation of the scheme in each Member State and the agency to which some or all enforcement authority has been delegated are listed in Table 2. 1. The enforcement authority is the same for dealers and suppliers in every Member State. The questionnaire asked four questions concerned with the monitoring and enforcement of compliance:

- What provisions have been made to monitor and enforce compliance with the directive? Please include any examples of prosecutions and other enforcement steps which you know have been taken.
- Are you aware of any concern or complaints about non-compliance, or about the accuracy of the Energy Labels?
- Are you aware of any studies that have been carried out to check whether the legislation is being properly complied with?
- Member States can "require suppliers to furnish [technical] information" when "they have reason to suspect it is incorrect". Do you know of any such inspections?

Directive 92/75/EEC and Directive 94/2/EC both require that Member States "shall take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this Directive" (Directive 92/75/EEC, Article 7a; Directive 94/2/EC, Article 3). It was left to Member States to define what necessary measures would mean in practice.

Enforcement activity spans a range of procedures from simple monitoring to prosecution and the imposition of financial penalties. These have been grouped and summarised in Table 2. 1 as:

- monitoring activity directed at establishing the current level of compliance;
- remedial enforcement activity primarily directed at improving the level of compliance through communicating with dealers and suppliers in a variety of ways;
- the use of formal legal processes to impose penalties on persistent rule-breakers.

According to responses received, nine Member States had monitored compliance, although Belgium, Finland and Spain were planning to do so. It appears that Member States have placed first priority on monitoring the compliance of dealers: all nine had monitored dealer compliance, but only five, Denmark, Ireland, the Netherlands, Sweden and the UK, had monitored supplier compliance. In five out of the nine Member States which had monitored dealer compliance, remedial enforcement action had been taken, while a sixth, Greece, was planning to take action.

Under Article 8.2 of the framework directive, Member States "may require suppliers to furnish evidence within the meaning of Article 2.3 concerning the accuracy of the information supplied on their Labels or fiches when they have reasons to suspect that it is incorrect". Article 2.3 requires suppliers to establish technical documentation "sufficient to enable the accuracy of the information contained in the Label and

the fiche to be assessed". Respondents were asked if they were aware of any inspections of this technical documentation. From the replies it appears that technical documentation has been called-in in four Member States: Denmark, Greece, the Netherlands and the UK. At the time of the survey Greece had requested the information from suppliers but had not yet inspected it. The technical documentation could apply to one or more machines.

Table 2. 1 Survey findings: formal implementation of Directive 94/2/EC and enforcement action[1]

State	Date	Ministry responsible	Delegated enforcement authorities	Monitoring		Remedial		Prosecutions	
				Suppliers	Dealers	Suppliers	Dealers	Suppliers	Dealers
AU	1 Jan 95	Federal Ministry of Economic Affairs: Division of Electrical Engineering		✗	✓	✗	✓	✗	✗
BE	4 Feb 97	Ministry of Economic Affairs: Economic Inspection Office		☞	☞	✗	✗	✗	✗
DK	1 Jan 95	Ministry of Environment and Energy: Danish Energy Agency	Danish Institute for Informative Labelling	✓	✓	✓	✓	✗	✗
FI	1 Jun 95	Ministry of Trade and Industry	Until end 1997: Consumer Ombudsman. Now: Safety Technology Authority	☞	☞	✗	✗	✗	✗
FR	28 Sep 95	Ministry of Industry: Directorate General of Energy and Primary Resources	La Direction de la Consommation et de la Rèpressions des Fraudes. ADEME	✗	✓	✗	✗	✗	✗
GE	1 Jan 98	Federal Ministry of Economics, Energy Conservation Division	Regional Authorities: Länder	✗	✗	✗	✗	✗	✗
GR	1 Jan 95	Ministry of Development: Directorate General for Energy		✗	✓	✗	✗	✗	☞
IR	17 May 95	Department of Transport, Energy and Communications	Irish Energy Centre and the Office of the Director of Consumer Affairs	✓	✓	✗	✗	✗	✗
IT	☞	Ministry of Industry Commerce and Crafts		✗	✗	✗	✗	✗	✗
LU	17 Jul 96	Ministry of Energy		✗	✗	✗	✗	✗	✗
NL	1 Jan 96	Ministry of Economic Affairs: Economic Inspection Survey		✓	✓	✓	✓	☞	☞
PO	1 Apr 95	Ministry of Economic Affairs: Directorate General for Energy	The Regional Delegations of the Ministry of Economic Affairs & General Inspectorate for Economic Activities.	✗	✓	✗	✗	✗	✗
SP	13 Mar 95	Ministry of Industry and Energy	Ministry of Health and Consumer Protection & Industrial and Consumer Protection Authorities in the regional governments	☞	☞	✗	✗	✗	✗
SW	13 Jun 95	The Consumer Agency		✓	✓	✓	✓	✗	☞
UK	1 Jan 95	Department of the Environment, Transport and the Regions	Trading Standards Authorities. In Northern Ireland: Department of Economic Development	✓	✓	✓	✓	✗	✗[2]

Notes: 1) ✓ = Yes; ✘ = No; ☞ = Planned; 2) There has been one prosecution in the UK, but this was in relation to the implementing directive on washing machines.

Although the responses received from France, Greece, Ireland and Portugal make no mention of remedial enforcement action, the true level of enforcement activity may be higher than reported. Ireland, for example, has put considerable effort into monitoring dealer compliance. It seems implausible that this has not been accompanied by *any* effort to encourage dealers to improve their levels of compliance.

Only a single prosecution was revealed in the survey. This took place in 1997 in the UK, when a dealer was found guilty of having displayed a B Label on a C-rated washing machine. Greece, Sweden and the Netherlands reported that they were considering prosecutions in the near future.

The results of the survey for each Member State are summarised below. It was noted that some Member States have already carried out compliance inspections, or are planning to do so. This section also summarises the results of these previous surveys of compliance on the basis of the information received.

Austria
The Ministry of Economic Affairs is responsible for the implementation of the scheme. The response from Austria does not provide details of any monitoring activity. However, reference is made to 'enforcement steps' taken to improve compliance at the point of sale. Enforcement has concentrated on information to retailers; threats of further action have, it is reported, been sufficient to improve compliance levels. However it appears from the reply that dealers have not always been well serviced by suppliers: during 1995 there were problems with suppliers failing to provide the necessary information and Labels. The respondent states that labelling of refrigerators is now considered to be more or less satisfactory.

Belgium
Responsibility for implementation of the legislation is divided between the federal Belgian authorities and the regional authorities of Flanders, Wallonia and Brussels. The Economic Inspection Office at the Ministry of Economic Affairs is responsible for the monitoring and enforcement of the scheme, while the regional authorities are responsible for the educational and promotional information campaigns required under the framework directive: the Belgian legislative framework places responsibility for rational energy use with the regional authorities. The legislation is based on the Belgian Trade Practice law of 14 July 1991 which allows for fines of up to 2 million BF for transgressions.

There had been no monitoring and enforcement action in Belgium as of December 1997. The directive was translated into national law on 20 November 1996 and came into force on 4 February 1997. It was therefore not included in the annual work program of the Economic Inspection Office which is set in December. As part of the work program for 1998 all manufacturers will be inspected and a sample of at least 200 retailers will be inspected. The 1998 cycle of inspections started on 1 March 1998.

Concern about label accuracy was expressed by the Flemish Minister of Energy in a letter sent in November 1997 to the Federal Minister of Economy.

Denmark
The Danish Energy Agency (DEA) under the Danish Environment and Energy Ministry is responsible for the implementation of the scheme, but has delegated the day-to-day monitoring and enforcement action to the Danish Institute for Informative Labelling (DVN).

DVN has carried out periodical spot-check surveys on dealers since July 1995. The checks were carried out in July 1995 (13 shops), December 1995 (12 shops), July 1996 (51 shops), December 1996/January 1997 (40 shops) and July/August 1997 (47 shops). They examined whether the complete Label was present, and if it was correctly placed. The proportion of appliances correctly labelled in the five spot-checks were respectively 62%, 65%, 71%, 75% and 79%. The results suggest a trend towards a greater level of compliance over the period, although the shops surveyed and the locations chosen differ between surveys and there are no overall compliance figures for Denmark. However, the choice of location was to

some extent guided by a wish to re-examine areas where compliance was low in a previous survey. The spot checks revealed differences between retail outlets in different areas of the country and between rental and non-rental outlets. In general, the further away from the capital the lower the compliance level. With a few exceptions, compliance levels among rental outlets were very low.

The results of inspections are communicated to the shop or main office of the chain, and the dealer is requested to write to DVN reporting on whether they are now complying or, if not, when they will start to comply. According to DVN, having to sign such a letter makes the dealers more attentive to labelling.

DVN also arranges to have the accuracy of the information provided by the manufacturer on the Label tested by the Danish Consumer Agency, and is responsible for following up the results. The ELDA database is used to identify appliance models which should be tested. The ELDA database, which contains about 90% of the models on the Danish market, is used to group models according to their service-to-capacity ratio, after which the groups are analysed to see if any appear worthy of further investigation. Where the Danish Consumer Agency's tests show that tolerances regarding the accuracy of the manufacturer's information have been exceeded, DVN will usually show the results to the supplier as a first step; often the supplier will revise his/her figures as a result. In such cases there is no further follow up. The process can also result in a request for technical documentation which the supplier is required to produce under the terms of the directive.

DVN has called-in fiches twice, and followed this up with feedback to suppliers on their adequacy, but has not monitored the availability of fiches at the point of sale. In addition DVN has produced advice for suppliers on the design of the fiche.

According to DVN, the suppliers mainly comply with their duties and have a reasonably positive attitude to the labelling scheme, although this is sometimes less so in the case of smaller suppliers. DVN encourages an attitude of co-operation.

Finland
The Ministry of Trade and Industry is responsible for the implementation of the legislation. Until the end of 1997, the Consumer Ombudsman was responsible for monitoring. From 1998 it has been the Safety Technology Authority. No monitoring activity had taken place at the time of the survey, however in May 1998 the National Consumer Administration carried out a survey of dealer compliance.

France
The Directorate General for Energy and Primary Resources under the Ministry of Economy, Finance and Industry has overall responsibility for the implementation of the labelling scheme. The enforcement authority is the Directorate for Competition, Consumption and the Repression of Fraud, although monitoring of dealers has been undertaken by Agence de l'Environnement & de la Maîtrise de l'Energie (ADEME).

In France a survey sponsored by ADEME and EDF and carried out by Nielsen between May and August 1996 showed that only 50% of cold appliances were labelled, falling to 24% in small retail shops. The Ministry of Economy, Finance and Industry suggested that this may in part be explained by the contrasting attitudes to the labelling scheme among French retailers; while large retailers generally respect the requirement to label, small retailers only rarely do so. However, even large retailers do not always respect the requirement to show a standard label. For example the 'Darty' chain, which represents 10% of the French market in cold appliances, has incorporated the Energy Label in a label of its own design. Strictly speaking, this does not comply with the requirements placed upon dealers under the directives, though from the point of view of a consumer the information presented is equivalent to that on the Energy Label.

No monitoring of suppliers had been undertaken by July 1997 (when the response was received) and no formal enforcement action had been taken.

Germany
The framework directive and Directive 94/2/EC both came into force on 1 January 1998. The Energy Conservation Division of the Federal Ministry of Economics has responsibility for the implementation of the scheme. Under the Constitutional Law, the Governments of the Länder are principally responsible for enforcement, including the monitoring of compliance and prosecution of offenders. The Länder are responsible for deciding, at local level, which specific authorities to delegate this to.

Little monitoring or enforcement activity has taken place, since not all of the Länder have decided how to discharge their monitoring responsibilities.

Greece
The Energy Conservation Section of the Ministry of Development is responsible for monitoring and enforcement, although some of the responsibility has recently been delegated to the regional and local energy agencies, and to the competent administrative services in the Prefectures of Greece. Four inspection tours were carried out between September 1996 and December 1997, mainly in the Attica Region. During this time the average compliance level improved very significantly, from 20% to 70%.

The Ministry of Development has recently called in the technical documentation from suppliers for review; some information had been received at the time of the survey, but had not yet been analysed.

No formal enforcement action had been taken as of August 1997, but the Ministry of Development plans to fine non-complying dealers during the next cycle of inspections. However, the Ministry reported that it had put pressure on both suppliers of the Label and retailers in connection with inspection tours of retailers. During the Spring of 1998, the Energy Conservation Section also sent out a letter to suppliers, requiring them to submit a declaration of responsibility about supplying the Labels to the retailers.

Ireland
The Department of Public Enterprise: Transport, Energy and Communications has overall responsibility for the implementation of the energy labelling scheme, but has delegated responsibility to the Irish Energy Centre (IEC). Until December 1997, the IEC had sole responsibility for monitoring the implementation of the directives. Five authorised officers were appointed by the Minister and inspections of outlets have been carried out on a regular basis: about 200-250 a year. From December 1997, the Office of the Director of Consumer Affairs has taken over most of these responsibilities. Surveys indicate that dealer compliance has been rising. Inspections showed compliance levels of 60% during 1996; a further survey in December 1997 showed a level of 64% for the whole country. In February/March 1998, another nation-wide compliance survey was conducted and this time the compliance level was found to be 72% for cold appliances. The Irish data echo the Danish findings: compliance levels in larger towns and cities are usually higher than the national average, at over 80%.

The IEC had not exercised the power to call in technical information or arranged to have appliances tested. Instead the IEC relies on an informal European Network (with Denmark, the Netherlands and Sweden) to identify instances of non-conformity or mis-declaration of results.

Italy
The presidential decree of 9 March 1998, which implemented the framework directive, identifies the Ministry of Industry, Commerce and Crafts as the final enforcement authority when the directive comes into force. It further indicates that the ministry is to use its provincial offices as well as other competent departments of the public administration to control the application of the directive (Pindar pers comm).

Since the implementing directives had yet to be implemented in national law, no monitoring and enforcement activity had taken place.

Luxembourg
The Ministry of Energy is responsible for the implementation of the scheme. No provisions appear to have been made to monitor and enforce the scheme.

Netherlands
The overall responsibility for implementing the scheme rests with the Ministry of Economic Affairs. Within the Ministry, the Economic Control Survey (ECD) is responsible for monitoring compliance of both suppliers and dealers. The ECD has commissioned TNO, a testing organisation, to carry out tests and check the technical documentation.

The first inspections of dealer compliance began at the end of 1995, but systematic control did not start until the beginning of 1997. Overall 159 retailers were visited twice in 1997 and 5,770 cold appliances were inspected. Among the total population of cold appliances surveyed in the second visit, 98% were correctly labelled (ECD 1998). Eight retailers were given an official warning because they had taken insufficient action after a previous warning. The ECD believes that the controls have had a very positive effect on the compliance level.

In 1997, a control scheme for testing label accuracy was set up by the Ministry in response to complaints from Consumentenbond, the Dutch consumers' association. 33 models of cold appliances were tested (60 appliances). Of these, twelve models (36%) showed higher energy consumption than the one indicated by the supplier on the Label. Three of these were no longer in production. For each of the remaining nine models, three additional exemplars of the same model were purchased for further testing. For six of these models (18% of the total 33), all three of the additional exemplars showed a higher energy consumption that that given by the supplier, more than half of these by as much as a class (ECD 1998).

Portugal
The Directorate General for Energy at the Ministry of Economy is responsible for the implementation of the scheme in Portugal. The Ministry is also the enforcement authority. Responsibility for monitoring compliance in the shops has been delegated to the five Regional Delegations of the Minésterio da Economia and the General Inspectorate of Economic Activities. No special funding has been set aside for monitoring and enforcement.

No data are available about compliance in Portugal. Under the legislation the Regional Delegations of the Ministry are required to survey shops every quarter and to report any non-compliance to the Dirreccão Geral de Energia. So far, none of the Regional Delegations have reported to the Dirreccão Geral de Energia, and only Lisbon has actually carried out a survey. According to the respondent, the failure of the Regional Delegations to live up to their duties under the legislation could be blamed on lack of funding and staff.

The Dirreccão Geral de Energia has not called-in technical documentation nor arranged to have any appliances tested. Funds for appliance testing may be set aside in the near future.

In cases of non-compliance by either dealers or suppliers, the Regional Delegations of the Ministry of Economy can impose a fine, but no cases of this happening were reported.

Spain
The Ministry responsible for implementation of the scheme in Spain is the Ministry of Industry and Energy. The Centre for Quality Control at the Ministry for Health and Consumer Protection is responsible for

monitoring and enforcing the scheme with the 19 regional governments. The regional consumer protection authorities are responsible for monitoring dealer compliance and the regional industrial authorities are responsible for monitoring supplier compliance. However, it is the regional consumer protection authorities which are responsible for any enforcement actions taken. No systematic inspections of either dealer or supplier compliance had been carried out at the time of the survey, but an inspection campaign was planned for 1998.

Sweden

The Swedish Consumer Agency (SCA) has been charged with overall responsibility for implementing all aspects of the scheme. Some monitoring and enforcement activity has taken place, directed at both dealers and suppliers.

SCA has made its first priority the monitoring of compliance at the point of sale, reasoning that, if the Labels are not being put on appliances in the retail outlets, suppliers will not be interested in supplying them. By July 1997, two rounds of inspections had been carried out: in October/November 1995 (99 shops) and in October/November 1996 (85 shops). Both had a wide geographical spread. Appliances which did not have to be labelled because they were produced before 1 January 1995 were excluded from the results (this applied to 4% of appliances in 1995 and 5% in 1996, concentrated in a small number of shops). In 1995 72% of appliances inspected were labelled, in 1997 the figure was 73% (SCA 1995/96; 1997).

SCA also analysed the proportion of shops which wholly or partially fulfil the requirements of the directives. The 1995 survey found that in:

- 36% of shops, *all* appliances were labelled;
- 54% of shops, several cold appliances were *not* labelled;
- 10% of shops, *no* cold appliances were labelled.

The 1996 survey found that in:

- 35% of shops, all appliances were labelled;
- 49% of shops, several cold appliances were not labelled;
- 16% of shops, *no* cold appliances were labelled.

These figures record appliances which were labelled at all, not the proportion which were correctly labelled. They therefore overestimate slightly the actual level of compliance. In the 1995 study 2% of Labels were not correctly placed (the inspection did not examine whether the data-strip was the right one), in 1996 this was less than 1% (and a few cases were discovered where the wrong data strip had been applied). No significant improvements were found over the period. Although there were differences in the level of labelling between different municipalities, the Danish pattern of declining compliance away from the capital was not observed.

The surveyors asked retail staff why Labels were sometimes missing. In 1995, the most frequent reason given was the absence of the colour background (36%); 17% said that they had not had time to apply the Labels. The 1996 survey produced different results: the most commonly reported reason was the non-availability of the data-strip, 22% had not had time to label, 11% did not have the colour label.

If appliances are not properly labelled SCA can demand that the dealer corrects the error; if it is not corrected, a fine can be imposed by the courts, whether the problem was intentional or simply negligence. The size of the fine is determined according to the penal code and is, among other things, influenced by the financial circumstances of the accused. As of 12 September 1997, no enforcement action had been taken against dealers, instead, compliance has been encouraged by information campaigns. In May 1997, SCA sent out a leaflet through the trade organisation Elektriska Hushållsapparat Leverantörer (EHL) explaining

what can happen if the legislation is not followed. However, SCA were preparing to take further enforcement action by the end of 1997.

The Danish Consumer Agency tests appliances for the Swedish Consumer Agency. The results are published in the magazine Råd & Rön. The tests have shown that the ratings given by manufacturers frequently deviate from those produced by the agency (Chapter 3).

SCA surveyed the fiches in February 1996 and in early 1997. None of the brochures complied fully, although in the later survey some suppliers appear to have been making greater efforts to follow the legislation (SCA 1995/96; 1997).

If the information on the Label or in the brochure is incorrect or incomplete, SCA can demand that the error is corrected and as a second step order that the Labels and brochures are reprinted; both stages can be accompanied by fines.

UK

The Department of the Environment, Transport and the Regions (DETR) has overall responsibility for the implementation of the scheme in the UK. Trading Standards Officers (TSO) are responsible for investigating complaints and for enforcing the legislation. TSOs are employed by Local Authorities.

No summary information about the level of monitoring and enforcement activity undertaken in the UK is available, and there is no obligation on Local Authorities to provide the DETR with statistics on enforcement activity. The Local Authorities Co-ordinating Body on Food and Trading Standards (LACOTS) reports that monitoring and enforcement activity directed at both dealers and suppliers has taken place, but they have no central statistics. However, LACOTS reports, on the basis of communication with local authorities, that dealer compliance levels “generally fall short of that desired”. And further that “in a number of cases retailers have reported shortcomings in the supply of materials by producers”.

Two surveys of dealer compliance by local Trading Standards Authorities have been undertaken, by Suffolk Trading Standards at the end of 1997, and another one by Oxfordshire Trading Standards at the beginning of 1998. Suffolk Trading Standards covered 28 shops and 709 appliances, and found that 57% of shops and 86% of appliances complied (Suffolk Trading Standards 1998). Oxfordshire Trading Standards surveyed 15 shops and 1,024 appliances and found that 81% of appliances complied. However the results are for both cold appliances and wet appliances covered by implementing directives (Oxfordshire Trading Standards 1998). In addition, one prosecution took place, a dealer in Northamptonshire was found guilty of exhibiting a class C washing machine model with a B label. The fine was £3000 (4,500 ecu).

LACOTS reports that formal action within the context of the legislation is not straightforward for a number of reasons:

- scarcity of testing facilities and the cost of testing;
- atypical and potentially burdensome enforcement requirements placed on authorities. In particular the ‘right to make representations’.

The ‘right to make representation’, included in the UK regulations covering the labelling scheme, means that the TSO has to give notice to the relevant dealer or supplier two weeks in advance of any formal legal action. The dealer or supplier concerned can then make representation to a third party about the appropriateness of the formal legal action intended by the TSO. According to LACOTS this both slows down the enforcement process and makes it more costly. ‘Right to make representation’ does not feature in any other trading standards legislation.

TSOs already enforce about 70 primary statutes and 1000 pieces of secondary legislation. This, together with the other obstacles reported by LACOTS and the fact that no additional funding has been made available for the purpose of enforcing the labelling scheme, suggests that enforcement in the UK is likely to remain at a fairly modest level.

Educational and promotional information campaigns

The framework directive requires Member States to "take all necessary measures to ensure that ... the introduction of the systems of Labels and fiches concerning energy consumption is accompanied by educational and promotional information campaigns aimed at encouraging more responsible use of energy by private consumers" (Directive 92/75/EEC, Article 7c).

Both "is accompanied by" and "educational and promotional information campaigns" are phases which are open to interpretation. In both cases they can be read in a way which reduces the scope of the requirement. "Is accompanied by" could potentially be taken to mean a requirement for a campaign promoting more responsible energy use by consumers to take place simultaneously with the introduction of the Label, without the campaign having to refer to the Energy Label, let alone make the Energy Label a central part. The phrase "educational and promotional information campaigns" does not say anything explicit about the depth of the informational effort required or the criteria for defining an adequate campaign. However, a more positive reading of this requirement would be that the campaigns would have to be of a scale capable of educating the consumer.

In the questionnaire respondents were asked to give brief details of any such educational and promotional information campaigns that had been undertaken. In general this appears to have been interpreted by the respondents as campaigns aimed at promoting the Label rather than as generalised campaigns promoting more responsible energy use by private consumers. It has been more difficult to assess the scale of the informational effort, although some indication is given in the text below on the basis of the information made available by respondents.

Eleven of the Member States which had implemented the legislation reported having undertaken some form of information campaign: Belgium, Denmark, Finland, France, Greece, Ireland, Luxembourg, Netherlands, Portugal, Sweden and the UK (Table 2.2). The Austrian respondent reported that no activities had been specifically initiated or sponsored by the Austrian Government, but that the consumer organisation in Austria had published information about energy labelling, and that manufacturers and the association of electricity suppliers have sponsored TV advertisements promoting the replacement of old appliances with more efficient ones. In Belgium, informational activities have been carried out by Flanders Regional Authority. Little information was received from Luxembourg, though it was reported that leaflets have been distributed to private consumers and information made available at trade fairs.

The survey revealed the use of a wide range of communication tools to promote the Energy Label. These are listed in Table 2.3. Some of the tools appear to have been specific to only one Member State, such as the educational cartoon for a children's TV programme in Ireland or the Green Telephone Line set up in Portugal to answer queries about the Energy Label generated by a media campaign. Other tools such as TV and newspaper advertising campaigns and retailer education programmes were mentioned by the majority of respondents. Although respondents were not asked to identify the target audiences of their information activities, it appears that the following specialist audiences were targeted:

- appliance purchasers;
- distribution utilities;
- energy advisors;
- general public;

- retailers;
- school children;
- teachers.

Table 2.2 Information campaigns sponsored or initiated by governments

	Information campaign	Main communication tools				
		Mass media	Point of sale brochures	Retailer education programme	Bill-stuffers	Rebate programme
AU	-	-	-	-	-	-
BE	yes [1]	✓	✓	✓	-	✓
DK	yes	✓	✓	✓	-	-
FI	yes	✓	✓	✓	-	-
FR	yes	✓	✓	✓	-	-
GE	-	-	-	-	-	-
GR	yes	✓	✓	-	-	-
IR	yes	✓	✓	✓	✓	✓
IT	-	-	-	-	-	-
LU	yes	-	-	-	✓	-
NL	yes	✓	-	✓	✓	✓
PO	yes	✓	-	-	✓	-
SP	-	-	-	-	-	-
SW	yes	-	✓	✓ [2]	-	-
UK	yes	✓	✓	✓	-	-

Notes: 1) Flanders Regional Authority; 2) Principally about Eloff Strömsnål

Some audiences, especially the general public, retailers and appliance purchasers, appear to have been targeted in only one or a few Member States, whereas other audiences appear to have been targeted in practically all the 11 Member States which supplied detailed information. The Irish respondent was the only one to list communication tools specifically aimed at teachers and children. As part of the project "Programme to Maximise the Impact of Domestic Appliance Labelling" (Electricity Supply Board 1995) the Electricity Supply Board and the Consumers' Association of Ireland created an educational cartoon for a children's TV programme, as well as a teacher information pack distributed to all post primary schools. The teacher information pack included a wall chart with details of the Energy Label and a set of teachers' notes. Potential appliance purchasers were targeted through media outlets ranging from TV and newspaper advertising to the distribution of brochures at the point of sale or as bill-stuffers.

The most detailed replies about information campaigns were received from Denmark, Finland, France, Ireland and Portugal summarised below as case studies. This does not necessarily mean that these five campaigns were the most ambitious ones undertaken.

Denmark

The information campaign has been described by the DEA as 'multi-stage rocket' (Karbo 1995). The first stage was a SAVE project (XVII/4.1031/93-007) *Pilot Project for Introduction and Use of the EU*

Energy Labelling of White Goods in the Retail Trade, the main component of which was the development and implementation of a retailer-education programme in a major retail chain. In the second stage (which began in December 1994) retailers received the executive order informing them of their duties under the legislation, an explanatory folder, and a covering letter from DEA announcing the upcoming courses. During the third stage (early 1995) invitations to the courses were sent out to all shops, and at the same time the retail sector's trade magazine carried editorials about the labelling scheme, as well as a four page insert. The fourth stage took place during March 1995, when the course 'Selling Green Household Appliances' was held in 16 venues across the country. The course briefly set out the political background to the Label and the lessons learned from the pilot project, explained the Label and the actors involved in the scheme and described the use of the energy efficient arrow scheme of the utilities. The main part of the evening focused on how the Community energy labelling scheme can be used by retail staff in sales work and on how retail staff can use it to achieve a higher turnover of energy efficient products, especially in the A, B and C categories, when faced with different types of customers. A quarter of all 3,000 vendors in Denmark went on the course, almost one per white-goods shop in Denmark. The fifth stage (beginning in April 1995) targeted the consumer. The campaign used a cartoon character, Robin Hound, to communicate the new scheme. It made use of television and newspaper advertisements, and a video starring Robin Hound was produced for the purpose.

According to one of the Danish respondents, the energy labelling scheme is now so integrated in the practices of the retailers that DEA is not considering doing follow-ups. Retailers themselves run courses for their staff, because the Label has become an important tool for them.

Table 2.3 Communication tools in information campaigns sponsored or initiated by governments

Specifically for retailers	Other audiences
Brochures	Bill-stuffers
Courses	Brochures for the public
Direct mail invitations to courses for all shops	Consumer exhibitions
Information displays at trade shows	Consumer organisation magazines
Information evenings	Educational cartoons for children's TV
Retailer magazine editorials	Efficient appliance champions (Eloff Strömsnål and Robin Hound)
	ELDA database
	Electric utility consumer magazine
	Energy exhibitions
	Green telephone
	Housing exhibitions
	Information displays at trade shows
	Information evenings for the public
	Media adverts
	Pocket calendars with the Label
	Posters
	Press releases
	Rebate schemes
	Shopping bags decorated with the Label
	Teacher information pack for post-primary schools
	TV lottery
	TV shows
	Videos
	Wall paper at railway stations and in major daily papers

Finland

The primary responsibility for educational and promotional information campaigns has been given to the Information Centre for Energy Efficiency, MOTIVA. From Spring 1995 to January 1997 a campaign was directed at consumers and retail staff. This was commissioned by the Ministry of Trade and Industry and run by MOTIVA in partnership with the Work Efficiency Institute, SLY-Pavelu OY (a subsidiary of the Association of Finnish Electric Utilities), the Association of Electronics Wholesalers and the Retailers Association of Domestic Appliances and Consumer Electronics.
In February 1996, a two day nation-wide seminar was held for dealers with energy labelling as one of the main topics. In February-March 1996, 12 training sessions for sales people were held, attracting 600 attendees from all over Finland. The main topics in these sessions were the characteristics of new refrigeration appliances on the market, including their energy efficiency, and Motiva's energy labelling campaign consisting of training material, posters, and videotapes both for sales people and for the consumer.

Information targeted at the consumer was disseminated in a variety of ways. Press releases on energy labelling of cold and wet appliances were distributed widely for newspaper and magazine articles, resulting in 97 articles by November 1997. Brochures, posters and video tapes on energy labelling have been distributed to retail outlets and other locations where consumer information can usually be found, such as the information desks of local electricity companies and municipal consumer councillors' offices. Information on energy labelling has been presented at housing, energy and consumer fairs and exhibitions.

France
Until recently, the bulk of educational and promotional efforts made by the French Government has been directed at the retailer. ADEME and Electricité de France (EDF) have conducted three retailer education pilot projects in Nord-Pas de Calais 1994, in Savoie 1995-1996, and in Charente Maritime 1996- 99. The projects were broadly similar: a two hour training package for retail staff was offered, and retailers were encouraged to sign a charter committing them to promoting the Label. In Nord-Pas de Calais, two major retailers, accounting for about 25% of the local market, signed the charter. In Savoie 40% and in Charente-Maritime 50% of the local retailers signed the charter.

In 1997, a national campaign based on the methodology of the pilot projects was launched by ADEME and EDF. By 7 July 1997, thirty-four retailers representing four thousand shops had signed the charter, representing more than 85% of the French market. In parallel, a communication campaign aimed at the general public was scheduled in the most popular French magazines in two waves, June and October 1997. Seven million leaflets were printed and sent to the point of sale. The total cost of the national campaign is ten million FRF (1.5 m ecu).

Ireland
As early as the end of 1992, the Irish Department of Transport, Energy and Communications introduced a national voluntary labelling scheme for refrigerators and washing machines to prepare the market actors for the proposed Community energy labelling scheme. As far as refrigerators were concerned the label was similar to the proposed Community label, while for washing machines an endorsement label showing a green smiling face was used to communicate an energy efficient model. In order to increase customer awareness of appliance labelling, the Irish Energy Centre, the Consumers Association of Ireland and the Electricity Supply Board (ESB) carried out a SAVE project (XVII/4.1031/93-31) from October 1993 to August 1995. The project was originally scheduled to run until December 1994 but, since the implementing directive for cold appliances was due to come into force on 1 January 1995, the project was extended to summer 1995 in order to support the introduction of the Community scheme.

The energy labelling message was communicated by a variety of means to the general public, consumers, retail staff, and school children. The main tools included advertisements on TV, in newspapers and at the point of sale; bill-stuffers; rebate schemes and a retailer education programme. A substantial number of

other one-off communication mechanisms were also used including information displays at trade shows, printing of shopping bags with the Label, pocket calendars with the Label, a teacher information pack for schools, a wall chart about Community energy labelling with teachers' notes delivered to all post-primary schools, an educational cartoon for children's TV, labelling information included in a very widely distributed Home Energy Efficiency booklet, an energy labelling insert in the Irish Consumer Association magazine and an energy labelling feature on a DIY TV programme.
The campaign addressed both dealers and suppliers as well as potential consumers, including school children. Information to children reinforced the message to parents through the discussion of what the child learns at school. ESB describes the use of television as strong, and stresses that although "TV advertising is expensive, [in] the successful introduction of a visual concept such as energy labelling, it proves to be a key medium in a compendium which should include radio, bill-stuffers and newspapers (particularly effective in the context of an appliance promotion linked to a labelling advantage message)" (ESB 1995). Although there is no information on how many people were reached by the TV adverts, ESB's media-tracking services indicated that this TV, radio and newspaper advertising program was well received and remembered (ESB 1995). In June/July 1995, 1.25 million ESB customers had received bill-stuffers promoting the Energy Label. In 1995, this included a competition which drew a written response from 65,000 customers. In the summer and autumn of 1994, ESB sent retail merchandising catalogues promoting the Label to two mixed groups of customers each numbering over 700,000.

The project included the development of an information video for retailers and a training package, and a retailer training programme conducted over around 18 evening meetings during October and November 1994.

As part of the programme, a market research exercise was conducted to establish the impact of the programme mainly in terms of the awareness of the Label among consumers. To this end, a baseline survey was carried out just after the start of the SAVE project. This survey showed that 18% of consumers claimed to be aware of the Label. At the end of the programme, another study showed that the proportion of respondents claiming to be aware of the Label had increased to 29%, suggesting that the campaign had gone some way to improving the level of awareness. The total cost of the programme was 450,000 ecu (ESB 1995).

Following the SAVE project, a number of newspaper advertisements were run in the national media, the latest in December 1997, and another bill-stuffer was sent to 1.25 million ESB customers in 1996.

Portugal
The Centro para a Conservação de Energia (CCE) has carried out educational and promotional information campaigns directed at the general public, business professionals and appliance manufacturers.

The campaign directed at the general public took place in the period July 1995 to January 1996, and was funded by the SAVE Programme and Electricidade de Portugal (EDP). The means of communication used were flyers and press advertisements. At the outset it was also the intention to include outdoor billboards, but this idea was abandoned because of budgetary constraints. The flyer informs the public about the energy labelling legislation and the importance of the Label in energy and environmental terms. It also explains to the consumer how the Label should be read and interpreted. Finally, the flyer introduces the Green Telephone Line set up as part of the campaign directed towards professionals and appliance manufacturers to provide answers to questions. A total of 4 million A4 four-colour flyers were sent out with the electricity bill directly to domestic consumers during October and November 1996. The press advertisements links up with the flyer thematically. The flyer is fronted with a smartly dressed male torso and the press advertisement has a line of cold appliances smartly dressed in the same manner. The four colour half-page advertisement appeared a total of 17 times in seven magazines during December 1997.

The campaign included a TV spot, a brochure, a poster and the Green Telephone Line mentioned above. The television spot ran between 15-31 July, 18-30 September and 9 October and 23 November 1996. It was 36 seconds long and was broadcast more than two hundred times by the public television network. The Green Line was available from October 1995 to January 1996 for information requests resulting from the flyer, press advertisements and TV spots. More than 200 calls were received.

Discussion

This chapter has reviewed the support given to the labelling scheme by Member State governments through looking at how they have fulfilled the requirements placed upon them in Community legislation.

Timing of legal implementation

All Member States, apart from Italy, have now implemented Directive 94/2/EC. In the other fourteen, timing has been staggered over a three year period from 1 January 1995 to 1 January 1998. Because some of the more populous countries in the Community implemented late, by the end of 1995 only 55% of the population of the Community lived in a Member State where the labelling scheme was in force, although Directive 94/2/EC had required implementing legislation to come into force twelve months earlier. Formal implementation is of course only part of the story and Chapter 3 will review the results of recent research on the presence of the Energy Label at the point of sale and the accuracy of the Label.

Monitoring and enforcement action

Nine Member States had undertaken some monitoring activity at the time of the survey, and an additional three were planning to do so.

Denmark, Ireland, the Netherlands and Sweden have put considerable effort into monitoring dealer compliance. There are difficulties in comparing the results of national surveys of compliance in retail outlets. First, the surveys are not based on statistically representative samples of shops. Secondly, while some surveys are national in scope, others are concerned with a smaller area, or number of areas. Thirdly, while some Member States carry out periodical surveys, allowing developments in compliance to be monitored, other Member States have carried out only one survey. However, with these caveats in mind, some interesting points can be noted.

The Danish surveys found that compliance levels were lower in outlets located further from the capital city. Irish data showed that larger towns and cities were likely to have higher compliance levels. In France differences were found between big retailers and small retailers; bigger retailers tended to respect the requirement to label but not necessarily the format (some devise their own, alternative labels), while small retailers were more likely to display entirely unlabelled appliances. By contrast, a recent survey by one Trading Standards Authority in the UK showed that the largest retailers had the lowest compliance. Finally, in Member States where data on dealer compliance are available for more than one year (Denmark, Sweden and the Attica region of Greece) the rate of dealer compliance appears to be improving over time. This is to be expected in the early years of the implementation of labelling. However, the results need to be treated with caution as the shops surveyed were not randomly chosen.

Only five Member States had monitored the compliance of suppliers as well as of dealers. This is likely to be because of the lack of testing facilities and the cost of testing appliances makes it more difficult to monitor supplier compliance. Only Denmark, the Netherlands and Sweden reported having tested cold appliances. Because testing the accuracy of Labels is expensive, the Member States which are actively checking the information could share information amongst all Member States. There is some evidence this is already happening, as the respondent in Ireland reported relying on the ‘European network’ to flag down instances of non-conformity or false declaration of results. An alternative method would be to require manufacturers to deposit the technical information where it can be accessed by the public.

Information campaigns

Eleven Member States had carried out information campaigns, more than had begun to monitor and enforce the scheme. Five Member States provided details of extensive information campaigns (Denmark, Finland, France, Ireland and Portugal). Consumer awareness of the Label will be taken up in Chapter 4, but as the surveys were carried out at a single point in time, it is not possible to examine the effect of these information campaigns on consumer attitudes.

CHAPTER 3: DEALER AND SUPPLIER COMPLIANCE

This chapter looks at how successful the labelling scheme has been in ensuring that reliable product-comparison information is available to consumers. It is divided into two parts. The first part is concerned with the presentation of the Energy Label in retail outlets and in mail-order catalogues, and new data from a recent survey of retail outlets conducted specifically for this report are presented.

The second part considers the technical issues of label accuracy. It reviews the test procedures through which energy consumption figures are arrived at, discusses a re-analysis of independent test data commissioned specifically for this study, and compares this briefly with other sources of independent test information.

1997 Eu-15 Survey Of Compliance At The Point Of Sale

Introduction

As part of this study, a survey of the level of compliance with the directives at the point of sale was carried out. During the summer of 1997, staff from local consumer organisations surveyed about ten retail outlets in each of the 15 Member States to establish how many cold appliances were correctly labelled (Appendix 3.1). In addition, a small number of mail-order catalogues (from Member States which have a significant mail-order market for cold appliances) were examined. The sample is not, of course, statistically representative of all stores in the states that were surveyed, so care needs to be taken in interpreting the results presented below. Nevertheless, the findings represent a snapshot of compliance across the EU-15 in the summer of 1997 and indicate the extent to which the scheme has been implemented at the point of sale. The data collection was co-ordinated by the Italian consumer group Altro Consumo and the analysis was carried out by the Environmental Change Unit (ECU) in the UK. Table 3.1 summarises the number of shops, appliances and mail-order catalogues surveyed in each Member State.

Table 3.1 Retail outlets, appliances and mail-order catalogues surveyed, summer 1997

	Retail outlets	Appliances	Mail-order catalogues
Austria	9	437	2
Belgium	10	449	3
Denmark	10	660	2
Finland	10	445	1
France	10	771	2
Germany	9	279	1
Greece	10	547	No mail order
Ireland	10	300	No mail order
Italy	10	545	No mail order
Luxembourg	10	317	2
Netherlands	10	522	Data not received
Portugal	10	557	No mail order
Spain	10	458	No mail order
Sweden	11	248	No mail order
UK	10	568	5
EU	149	7103	16[1]

Notes: 1) The total number of catalogues was only 16 since the catalogues from Luxembourg and Belgium were the same, and the catalogue for Austria was the same as the one for Germany.

The objectives of the survey were:

- to establish the level of compliance with the directives at the point of sale.

The first purpose of the survey was to record the extent to which retailers are complying with the formal duties placed upon them in the directives and the types of non-compliance which occur.

- to establish the availability of useful information to the consumer.

While some Labels are not, strictly speaking, in compliance with all aspects of the directives, they may still provide information which is useful to a reasonably assiduous shopper. The survey tried to assess how much useful information is actually available.

Compliance levels in conventional outlets

For the Community as a whole, the availability of product-comparison information to the consumer was low in summer 1997. Almost half of all appliances examined in the shops were not correctly labelled and failed to comply fully with the requirements set out in the directives: 44% of 7103 appliances in 149 shops across the Community.

The most common type of non-compliance was the absence of all or part of the Label: of the appliances which were found not to comply, 91% failed for this reason. Over the survey as a whole, 40% of appliances surveyed were missing the entire Label, the colour background, or the data-strip (Table 3.2). From the normal consumer's point of view, the absence of any part of the Label is equivalent to the appliance not being labelled at all. The colour background by itself carries only generic information in the appropriate language; it communicates nothing about the energy consumption and energy efficiency of the labelled appliance. The data-strip on its own carries information which could, in theory, be made use of by an extremely assiduous consumer who has prior knowledge of the Energy Label and can remember the categories to which the different types of information on the data-strip refer. This is too much to expect from the majority of consumers.

Table 3.2 Appliances missing all or part of the Label

Type of non-compliance	%
Missing all the Label	23
Missing the colour background	15
Missing the data-strip	2

To work properly, the Label needs to be displayed prominently; if it is left inside the appliance, or placed at the base or to the side of the appliance, or obscured, its impact will be reduced. The framework directive requires the Label to be "placed on the outside of the front or top of the appliance, in such a way as to be clearly visible and not obscured" (Article 2.3). The survey found that 9% of appliances had the Label wrongly placed or obscured, almost always because the Label (or part of it) was left inside the appliance. This happened most often when the colour background was missing, suggesting that the retailer left the data-strip in the appliance in response to running out of colour backgrounds. It was extremely rare for the Label to be obscured (two shops in the UK) or placed wrongly on the outside of the appliance (just 1% of cases, concentrated in two shops in Ireland and one in the Netherlands).

The legislation specifies the range of information to be carried by the Energy Label. The most important information from the point of view of the present study is the energy class and the annual energy consumption figure. Only a small number of Labels failed to carry all the required information, and the number missing energy consumption and energy rating information was negligible (the most common omission was noise data, which is voluntary).

A small number of appliances (3%) were affected by 'other errors'. Most of these concerned the French *Darty* chain of stores which, as noted above, uses its own design of energy label. The next most significant group of 'other errors' was found in a Danish shop where 17% of appliances carried a label which was photocopied in monochrome and reduced in size. In a single Belgian shop, 12% of appliances were found to have a damaged label. In three shops in Sweden, a small number of appliances were reported as having a label where the frame was green and the colour shade of the arrows not quite correct; these all turned out to be on a single brand of appliance. The aggregate compliance picture for the Community as a whole and each Member State is summarised in Table 3.3.

Table 3.3 Compliance levels and types of non-compliance found (%)

	AU	BE	DK	FI	FR	GE	GR	IR	IT	LU	NL	PO	SP	SW	UK	EU
Complied	64	36	86	50	59	58	30	56	17	67	94	40	33	64	83	56
Only colour background	-	8	0	-	3	0	2	1	-	1	2	2	2	4	1	2
Only data-strip present	3	18	1	41	2	19	25	6	18	12	1	18	49	21	5	15
No colour background or data-strip	26	26	5	9	33	22	41	10	65	12	1	37	14	6	8	23
Correct Label but wrongly placed	-	-	-	-	0	-	-	23	-	-	2	0	-	-	-	1
Correct Label but obscured	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	0
Label or part of it inside appliance	10	13	6	17	2	13	14	-	8	3	-	1	23	13	0	8
Incomplete data-strip	1	3	-	0	1	0	-	4	-	7	-	3	-	1	0	1
Other error	-	2	3	-	19	1	1	0	-	0	0	1	0	5	1	3

Note: Where 0% is shown the incidence was <0.5. Where ' -' is shown this non-compliance type did not occur. Because some appliances had more than one non-compliance, the figures do not sum to 100%. The EU average is not weighted.

Differences between Member States: levels of compliance and types of non-compliance

In Member States that enacted implementing legislation promptly the authorities, suppliers and dealers have had longer to get the energy labelling scheme up and running. Yet the survey suggests that the date of legislative implementation of the directives is only a weak guide to compliance. Figure 3.1 shows that there are significant differences in compliance levels between Member States where the domestic legislation came into force around the same time. The UK, Denmark, Greece and Austria were all among the earliest implementers; in Greece and Austria, the survey recorded compliance levels of 30% and 64% respectively, while outlets in the UK and Denmark had compliance rates of 83% and 86%. Compliance levels also differ substantially among Member States where the domestic legislation came into force late or where it has not yet come into force. There would be an *a priori* assumption that late or non-implementers would have the lowest levels of compliance. Italy and Germany are the only two Member States where Directive 94/2/EC was not in force at the time of the survey. Yet while Italy's compliance level is indeed the lowest recorded, at 17%, Germany's level of 58% is actually higher than the Community average. This reflects the high level of environmental concern (Chapter 4) and the wide experience of labelling in Germany. The figures suggest that even without the intervention of their respective Member State governments, dealers and suppliers do respond to European legislation, or to the demands of consumers. Even so, by summer 1997, there were only three Member States where more than 70% of appliances were correctly labelled (Denmark, the Netherlands, and the UK).

As noted above, the most frequent type of non-compliance in the Community as a whole is the absence of all or part of the Label. However, some Member States did not conform to this pattern. In Denmark, the Label was just as frequently left inside the appliance, and in all cases the Labels were entire, suggesting that retailers could very easily improve compliance levels. In Ireland the most frequent single non-compliance was incorrect placing of the Labels, but this was accounted for by the findings in two particular shops. If these are removed from the sample, the absence of all or part of the Label becomes the most important type of non-compliance. In Finland, Spain and Sweden, the most frequent problem was the absence of the colour background. Although it is generally very rare to find only the colour background present, in Belgium 8% of appliances were mis-labelled in this way.

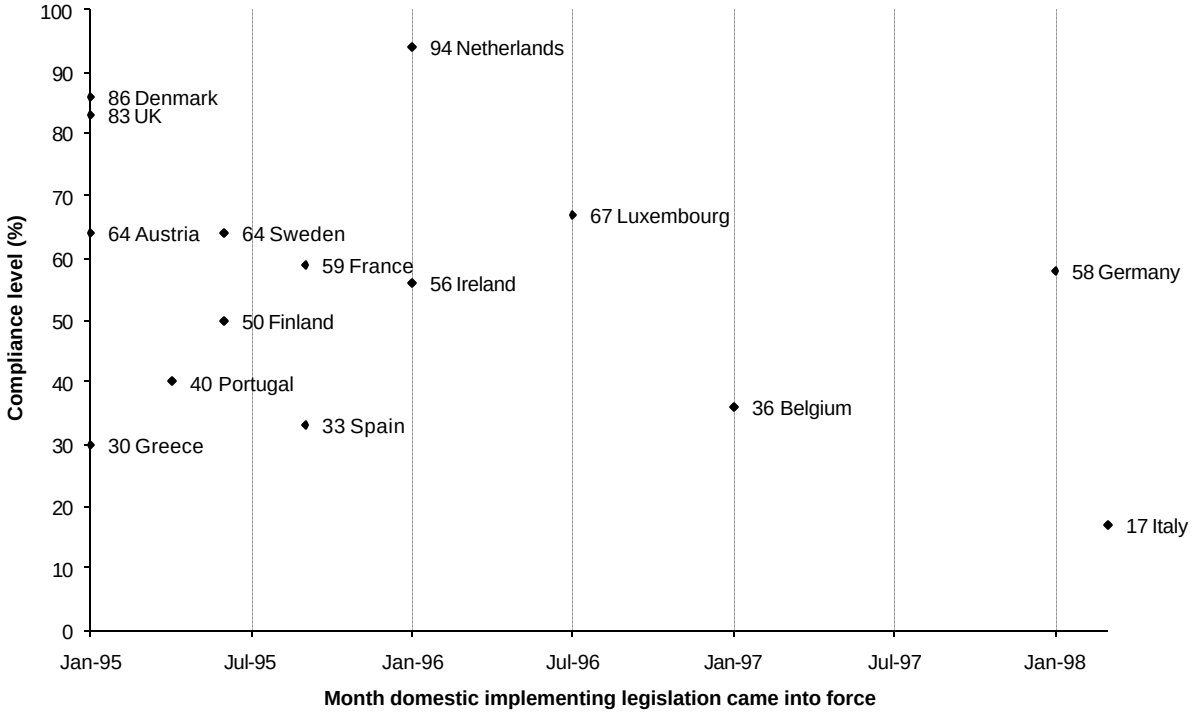


Figure 3.1 Compliance levels and date of implementing Directive 94/2/EC

Note: The date shown for Italy is when the framework directive alone came into force.

Compliance analysed by retailer type

In the point-of-sale survey, surveyors were asked to note down the type of outlet visited. The different retail structures in different countries means that it is not a straightforward matter to compare categories at a fine level of detail. Stores were therefore simply divided into three categories: chains, independents and buying groups (Table 3.4). Again, the data need to be treated with extreme caution, but do suggest that independent retailers may, on average, have a lower level of compliance (44% in our survey) than chains (58%) and buying groups (60%). None of these groups diverge very widely, however, from the Community average of 56%.

Table 3.4 Compliance analysed by shop type

Retailer Type	Appliances	% complied
Buying groups	910	58
Chain	4648	60
Independents	1529	44

Compliance analysed by location

There are some indications that compliance levels vary according to the location of retail outlets within Member States. Danish survey data discussed in Chapter 2 show compliance rates to be lower the further away from the capital the outlet is located, while Irish survey data suggest that compliance tends to be higher in the bigger towns. The compliance data were analysed to see if the pattern of greater compliance in capital cities could be confirmed. Seven Member States did appear to have a higher level of compliance in the capital city: Austria, Belgium, France, Germany, Greece, Italy and Sweden (Table 3.5). However, analysis of the aggregate sample showed that non-capital locations had a higher level of compliance than capital cities, 60% versus 55%. Therefore it is not possible to confirm the Danish and Irish patterns from the data.

Table 3.5 Compliance analysed by location

		Retail outlets	Appliances	Compliance (%)
Austria	Vienna	7	373	74
	Wiener Neustadt	2	64	3
Belgium	Antwerp	5	185	30
	Bruxelles	5	264	41
Denmark	Copenhagen	6	377	79
	Odense	4	283	94
Finland	Helsinki	3	98	31
	Lahti	5	182	53
	Vantaa	2	165	58
France	Paris	5	361	73
	Rouen	5	410	47
Germany	Berlin	5	169	66
	Freiburg	9	110	45
Greece	Athens	6	338	33
	Thessaloniki	4	209	24
Ireland	Dublin	10	300	56
Italy	Milan	5	307	15
	Rome	5	238	20
Luxembourg	Bertrage	1	48	42
	Diekirch	1	21	100
	Echternach	2	26	69
	Luxembourg	5	133	56
	Strassen	1	89	87
Netherlands	The Haague	4	190	98
	Naaldwijk	1	10	0
	Nijmegen	3	163	99
	Rotterdam	2	159	91
Portugal	Lisbon	6	407	37
	Porto	4	150	46
Spain	Barcelona	6	158	35
	Madrid	5	300	33
Sweden	Gothenburg	5	87	52
	Stockholm	6	161	70
UK	Enfield, London	1	34	56
	Hatfield	1	53	91
	Hoddesdon	1	24	83
	Leeds	5	346	80
	Waltham Cross	1	31	100

	Welwyn Garden City	1	80	98

Over 10% (17/149) of retail outlets achieved compliance levels of 90-100% with nearly 1000 appliances. The fact that some retailers do manage to get nearly full compliance, suggests that the absence of a Label reflects negligence on the part of the retailer.

mail-order COMPLIANCE

The results of the survey of 16 mail-order catalogues from eight Member States indicates that compliance is lower than in conventional retail outlets: only five catalogues complied fully (three in the UK, one in France and one in Austria and Germany). The main compliance problem was that, while catalogues had included all the required information, it was not displayed in the manner required by Directive 94/2/EC. The directive requires mail-order catalogues to carry the following information in the order specified and in a legible format:

- energy efficiency class;
- energy consumption in kWh per year;
- net volume of fresh food compartment;
- net volume of frozen food compartment;
- star rating;
- noise (optional).

In eight catalogues the information was not displayed in the right order and was mixed with other product information. Only one mail-order company appeared to have made no effort at all to incorporate the required information. In 12 catalogues additional information in support of the Label was provided, ranging from very scanty to reasonably informative. In four catalogues, no effort was made to explain the Label.

Accuracy of labels

Introduction

This section discusses a different aspect of compliance - the accuracy of the Label that is placed on each individual appliance. The energy performance data on which the Label is based are supplied by the manufacturer. The directive makes no provision for independent testing to verify that the declared information is correct, but specifies that the appliances must be tested in the manner prescribed by the European standard EN 153, “Methods of measuring the energy consumption of electric mains operated household refrigerators, refrigerator-freezers, frozen food storage cabinets, food freezers and their combinations, together with associated characteristics”. Technical standards are developed and propagated through a hierarchy of national, European and international standards bodies. EN 153 was issued by the two relevant European standards organisations (CEN and CENELEC) and is actually a group of standards covering different classes of appliance in the household refrigeration group. The relevant International Standards Organisation (ISO) standards are: ISO 7371 (household refrigerators with and without frozen food compartments); ISO 8187 (fridge-freezers) and 5155 (freezers), and ISO 8561 (forced air appliances i.e. frost-free freezers). The energy tests within these measure ‘standard energy consumption’ - the amount of energy used by an appliance over a 24 hour period when placed in a controlled environment of specified temperature and humidity. Specified average and maximum internal temperatures must be achieved during the testing period.

Possible failures of the test method

There are a number of potential problems with a measurement system of this sort: it might fail to reproduce realistically the actual use to which appliances are put by consumers in the home, or the test

methods might contain ambiguities, allowing different test houses to apply the tests in different ways. These potential problems are recognised by the standards bodies themselves: among ISO's stated goals for measurement methods are that they should represent the practical situation of consumers and that they should yield reproducible data (ISO-SEC Guide 36, 1982).

Representativeness of usage patterns

It appears to be generally agreed that EN 153 gives a reasonably fair representation of the actual performance that the consumer is likely to experience in the home (GEA 1993; CARTC 1998). There are, inevitably, some areas which are problematic. Three particular deficiencies in the standard have been identified: it fails to take account of door-opening; the assumptions made about ambient (room) temperatures may not correspond to the actual situation in consumers' homes, and the temperature setting used may not correspond to those most often used by consumers (GEA 1993). However, the door-opening and differences in ambient temperatures do compensate for each other to some extent in that door-opening raises the energy consumption of the appliance in the home, while lower ambient temperatures in the home decrease energy consumption. Very little is known about the temperatures set by consumers, so this part of the test is assumed to be accurate.

Like many standards, EN 153 has been criticised for failing to keep pace with technical and commercial innovation: for example, providing test methods for frost-free refrigerators (however EN 153 now refers to prEN 28561 covering forced air appliances). Overall, however, the EN 153 group of standards appear to be accepted as reasonably capturing the performance that consumers experience in real life. The consumption on the Energy Label is a good indicator of actual energy use. This is important for both policy and energy modelling.

Verification procedure

The intention of the directive is that manufacturers should declare their best estimates of the average values (of energy consumption, volume etc) of their production of a particular model. If a manufacturer does this, there is a substantial possibility that the measured values of a random small sample selected by a Member State will be worse than the declared value. The intention of the 'verification procedure' in EN 153 is to allow for production variance (and measurement inaccuracies) and to ensure that there is only a very small risk that a manufacturer that has made a correct declaration will be found to have provided incorrect information. The idea is that if the verification procedure is correctly followed by a Member State, and if the model fails, then that should be considered sufficient proof that the declared values were incorrect. Considered in this light, it is clear that where there is doubt about the accuracy of a Label, the Member State should carry out the verification procedure set out in EN 153, and should prosecute in those cases where the model fails. This will not eliminate the possibility that manufacturers may be lucky and pass, but at least there will be a reasonable possibility that incorrect declarations will be punished.

The verification procedure allows the declared energy consumption to vary by ± 15% and volume by ± 3%. As reported, no Member State has prosecuted a manufacturer or retailer for inaccurate labelling, though some prosecutions were planned (Table 2.1). As a result, this appears to have induced a relaxed approach by some manufacturers, who use the tolerances that were supposed to be reserved for the verification procedure, and adjust the efficiency index accordingly. By reducing the energy consumption by 15% and by increasing its volume by 3%, the efficiency index could be 17.5% lower than as tested. In reality most of the problems concern discrepancies in energy consumption: there is less variation in volume. The use of the tolerance is, therefore, normally the 15% figure only.

Energy efficiency classes

The method for grouping refrigeration appliances into bands is specified in the implementing Directive (94/2/EC) at Annex V and was described in Chapter 1. Models in energy efficiency class A consume, per unit volume, less than 55% of the European standard model on the market when the Label classes were

determined in 1993. Models in Class G consume at least 125% of the average. The bands are of different widths, ranging in size between 10 and 20 points. Appliances whose efficiency falls on either side of the line will be assigned to different categories, even if their consumption varies by only a few percentage points, so that the difference between two models in adjacent bands can be smaller than that between appliances in the same band. The classes at the extremes - A and G - are open ended. There is currently no lower limit to the efficiency of the appliances placed in category G, though 'minimum standards' will come into force from July 1999, which will lead to the removal from the market of models below class C (except for chest freezers where only F and G models will be banned). There is equally no 'top limit' to the efficiency of appliances in category A. If average appliance efficiency improves over time, as has historically been the case, more and more appliances can be expected to share class A. It may take as long as two years before the Label classes are redrawn to take account of the minimum standard, with the new label becoming effective in 2001 (European Commission pers comm).

Because the main point of the Labels is to enable consumers to choose more efficient appliances from the range on sale, it is particularly important that the rank order of the labelled appliances is reliable. As long as the underlying consumption data on which the Labels are based are being produced consistently, the slightly arbitrary nature of the grouping of appliances is a comparatively minor problem. Although the scheme will exaggerate the differences between some similar machines, and fail to point up differences between others, the correct rank order should be maintained. However, it is immediately clear from the discussion of the verification procedure tolerances above that this cannot be guaranteed, even in principle. A manufacturing company which issues declared energy figures that accurately reflect the measured energy consumption could easily see its products 'overtaken' by less efficient appliances from a manufacturer that took liberal advantage of the 15% energy tolerance within the standard.

Manufacturer mis-declaration

Since the idea of the labelling scheme was first suggested, doubt has been cast on the accuracy of the laboratory data produced by manufacturers. Consumer organisations regularly find that the energy use measured in their tests diverges from that reported by manufacturers. The representative of the Bureau European des Unions des Consommateurs (BEUC) at the 1992 workshop on domestic appliance standards organised by the Commission in Brussels suggested that a third of all refrigeration appliances tested by the consumer groups at that time fell outside the tolerances accepted in EN 153, and that the overwhelming majority of the errors gave an optimistic view of the energy use of the appliance (GEA 1993). Nevertheless the directive, when published, made no direct provision for independent testing. Consumer groups across Europe regularly carry out independent laboratory testing of appliances for publication in their magazines, and their reports have continued to show significant differences between the energy use recorded in their own tests and that declared by manufacturers on the Energy Labels. The survey of Member States reported in Chapter 2 revealed that there is official concern about label accuracy in several Member States (reported from Belgium, France, Luxembourg, the Netherlands, Spain and the UK).

Analysis of label accuracy

In order to try to quantify the problem, the present study commissioned a systematic re-analysis of data generated in tests carried out for a group of consumer organisations. The laboratory data provide a consistent source of independent product test information, the conclusions of which have already appeared in the public domain. The tests have the extra advantage of being repeated, allowing limited time-series analysis to be carried out. The data came from research reports held at the Consumers' Association Research and Testing Centre (CARTC) in the UK. Tests carried out on refrigerators, freezers and fridge-freezers at a number of dates over a period from 1994 (shortly before the Label was introduced) to 1997 were re-analysed. Table 3.6 lists the dates and product groups in the tests and the consumer organisations submitting samples for testing.

In total, the tests collected data on 397 models. The models submitted for testing by consumer organisations are normally selected on a random basis from shops, as the aim is to test examples of the actual models that consumers buy. In some cases, however, second samples of particular models are also tested (Appendix 3.2). These second samples include models that were tested because the first sample tested had exceeded the manufacturer's stated energy consumption by more than 15%. The inclusion of such 'second samples' might therefore distort the analysis, and they have been excluded. The data on which this section is based are therefore restricted to the 232 samples coded '1' in the original tests.

Table 3.6 Consumer organisations submitting samples for testing

	Year			
	1994	1995	1996	1997
Refrigerators	CA, CB, VU	none tested	CA, CB, VU	CA, CB, SW, VU
Freezers	CA, CB, VU	none tested	CA, Conseur	none tested
Fridge-freezers	none tested	CA	CA, CB, SW, VU	CA, VU

Notes: CA (Consumers' Association, UK); CB (Consumentenbond, Netherlands); VU (Verbruikersunie, Belgium); SW (Stiftung Warentest, Germany); Conseur (comprises: Edideco, Portugal; Edociusa, Spain; Editoriale Altro Consumo, Italy)

Consumer organisations from across Europe often carry out joint tests. Refrigeration product tests carried out at CARTC are undertaken jointly for consumer groups from the UK, Germany, Netherlands, Belgium, Portugal, Spain and Italy. In joint tests, each national consumer organisation chooses the appliances which it submits for testing. The brand selection is normally designed to include a range of the more popular models on sale, as well as some newly-introduced models. Not all of the groups join in every test, and fewer of the models re-tested here will have been submitted by German, Portuguese, Spanish and Italian groups than by those from the UK, Belgium and the Netherlands. Nevertheless, the fact that tests are conducted jointly means two important things: first, the models tested should be broadly representative of a wide range of European markets; secondly, the details of the test methods have been agreed by each of the participating consumer groups, so that the tests reported here have been carried out within a cross-national consensus on test methodology.

The sample includes models produced within the EU and imported from elsewhere. The largest group of models in this analysis were manufactured in Italy (35%); a further 26% were manufactured in Germany. Eleven different 'countries of origin' were recorded in the original tests (Table 3.7).

Table 3.7 Country of origin of tested cold appliances

Austria
Denmark
Germany
Hungary
Italy
Netherlands
Slovenia
Sweden
Turkey
UK
USA

Results

The results are striking in a number of ways. Figure 3.2 is derived by comparing the energy efficiency obtained by CARTC with those declared by the manufacturers of the tested appliances. The horizontal axis shows the degree of divergence between the declared figure and CARTC's test figure, in bands of 5%. The height of the bars shows the number of appliances which fell into each division. A vertical line shows the point at which manufacturers' data agree with those of CARTC. To the left of that line CARTC tests show the appliance to be more energy efficient than the manufacturer claims. To the right of the line, the appliances perform less well in CARTC tests than in the manufacturer's declaration.

The first thing to notice is the extent of the disagreement between the two sets of figures. In only 21% of cases were the CARTC figures within 5% of those declared by manufacturers. In 41% of cases, the CARTC figures differed by more than 15% from those reported by manufacturers.

The second notable point is the distribution of differences between the two sets of data. In only 15% of cases do CARTC's results produce energy efficiency figures that are better than those declared by manufacturers, while 85% show worse performance. The strongly shifted and skewed nature of Figure 3.2 points to another interesting result: that comparatively little of the difference between the CARTC test results and the declared data is explained by the 15% tolerance allowed under EN 153. If this tolerance was a powerful factor in explaining the differences, the bulk of the results would lie much closer to the zero point of the horizontal axis. In fact, as noted above, the results for 41% of the models tested varied by more than 15% from declared values. Once the direction of the variances is taken account of, the point is made even more powerfully: less than 1% of all appliances in the sample fell outside the 15% tolerance at the lower end of the scale.

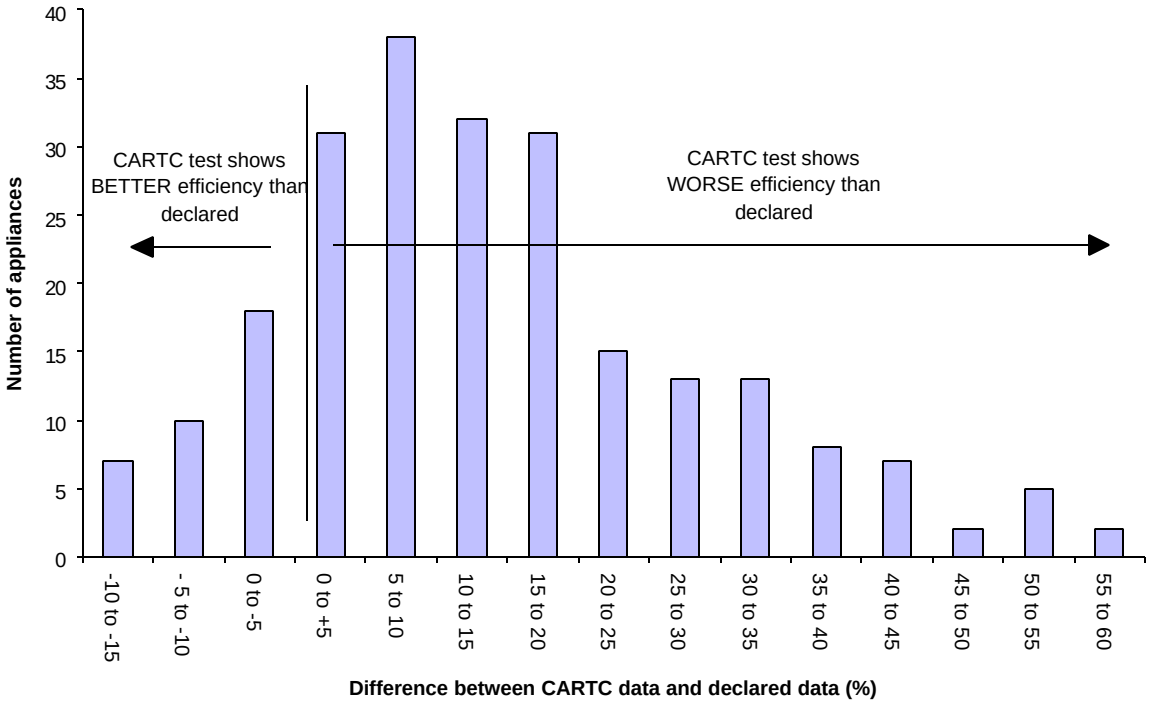


Figure 3.2 Divergence between CARTC test data and manufacturer-declared data

The third point is that the data are also positively skewed - there are more 'extreme cases' towards the right-hand side of the graph than would be expected if the differences were produced by random errors. In the relatively small number of cases where CARTC's results show better performance than the

manufacturer has declared, the differences are small, rarely large enough to cause the appliance to change to a better energy efficiency class. Differences on the other side were much more extreme, and it is notable how many cases show a very large difference indeed. Figure 3.2 shows the long 'tail' on the positive side of the distribution: 22% of all appliances in the sample had a recorded energy consumption more than 25% greater than that published by their manufacturer.

Interaction between energy consumption tolerance and energy efficiency classes

As noted above, the nature of the labelling scheme is such that a difference of a few percentage points might cause an appliance to jump between categories on the scale. This is an inevitable consequence of a system that translates continuous data into graded categories. In the central energy classes, it is possible for an appliance to jump two classes, simply by making maximum use of the 15% energy tolerance in EN 153. In addition, of course, the still larger variances between the CARTC test results and the declared figures mean that appliances can jump even further between classes. Figure 3.3 shows how many appliances would move to a different class if the CARTC data were used instead of the manufacturers' declared figures. The height of the bars shows the percentage of appliances that would respectively jump one, two, three or four classes.

When analysed using CARTC energy data and manufacturers' declared volumes, a very small proportion (approximately 3%) of appliances move into a higher class than they previously occupied; a further 36% remain in the same class - though this includes Class 'G' appliances, which cannot change to a lower class, however much the energy use figures are changed. Again, what is notable is not simply the large proportion (61%) of appliances that change class, but the size of the changes. Almost a quarter of the appliances drop by more than one class when re-categorised; this includes a sizeable minority - about 11% of the total population - which drop by more than two classes.

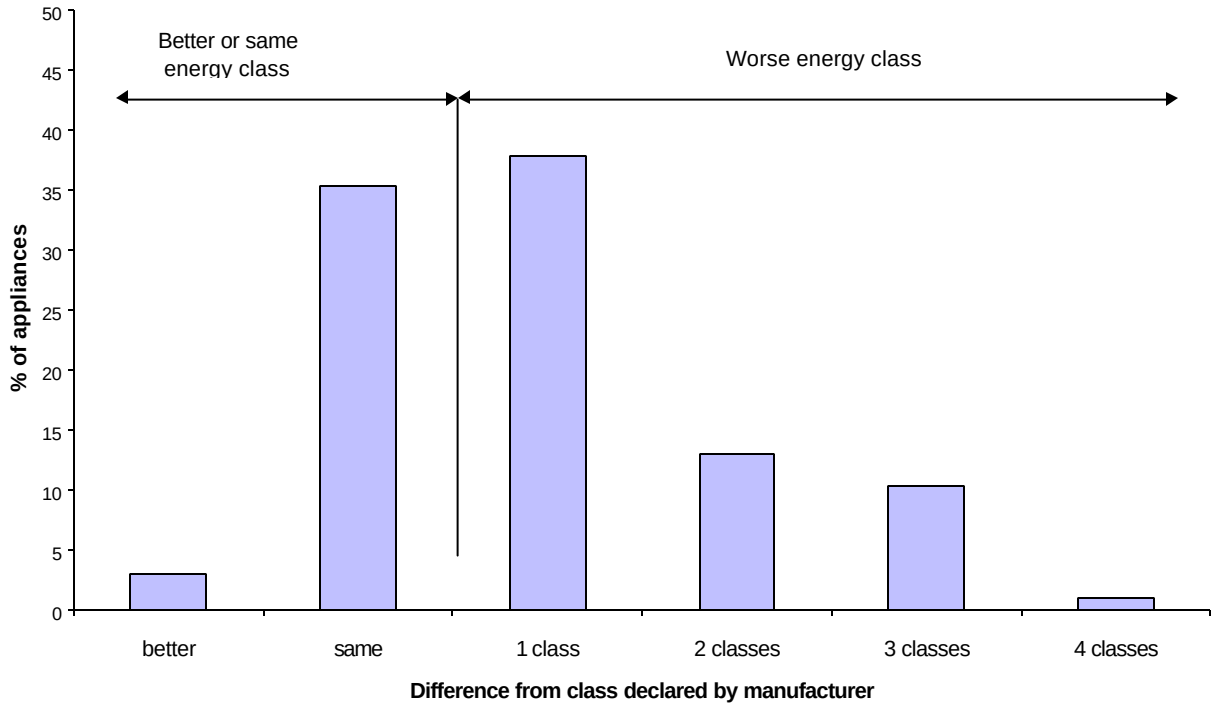


Figure 3.3 Changes in label class with CARTC data

Again, comparatively few of these shifts can be explained by the tolerances allowed in EN 153. No more than 20% of appliances with test results within 15% of declared energy consumption would change class by switching to CARTC's test results. However, while the interaction between the labelling methodology and the permitted tolerances remains problematic, a larger problem is the substantial disagreements between the test data produced in CARTC and the data declared by manufacturers.

Comparison of CARTC results with tests in France and Denmark

As noted above, the CARTC tests include samples from consumer groups in seven European countries. Groups in other countries also, of course, test refrigeration appliances. Data from these other groups have not been as extensively reviewed for this report as the CARTC data, but a brief inspection indicates that discrepancies between manufacturers' declarations and independent test data generated by consumer organisations continue to be found in other European countries. In France, the Union Federal des Consommateurs published a report on fridge-freezers in June 1997. Nine models were reported on in UFC's magazine *Que Choisir* (ten energy tests were carried out, as one model tested can be switched to a lower energy consumption mode, depending on ambient temperature). Out of the ten energy tests, three placed the appliance in the same class as that given by the manufacturer's own data; in three cases the appliance shifted one class; in three cases the appliance shifted two classes, and in one case the appliance shifted four classes. In every case, the shift was to a less efficient energy class.

In Denmark, the Consumer Agency carries out independent testing of refrigeration products in its own laboratories, on behalf of the Danish Energy Agency as part of the Danish government's monitoring effort. As with the results reported elsewhere in this chapter, the appliances are purchased in normal shops and tested in accordance with EN 153. In late 1997 the DEA reviewed a series of 79 tests that had been carried out between 1995 and 1997 on refrigerators, freezers and fridge-freezers. Figure 3.4 shows how the appliance Energy Label categories changed when based on the Consumer Agency tests, as opposed to the manufacturers' declared figures. The CARTC results from Figure 3.3 are shown for comparison: both achieve similar results.

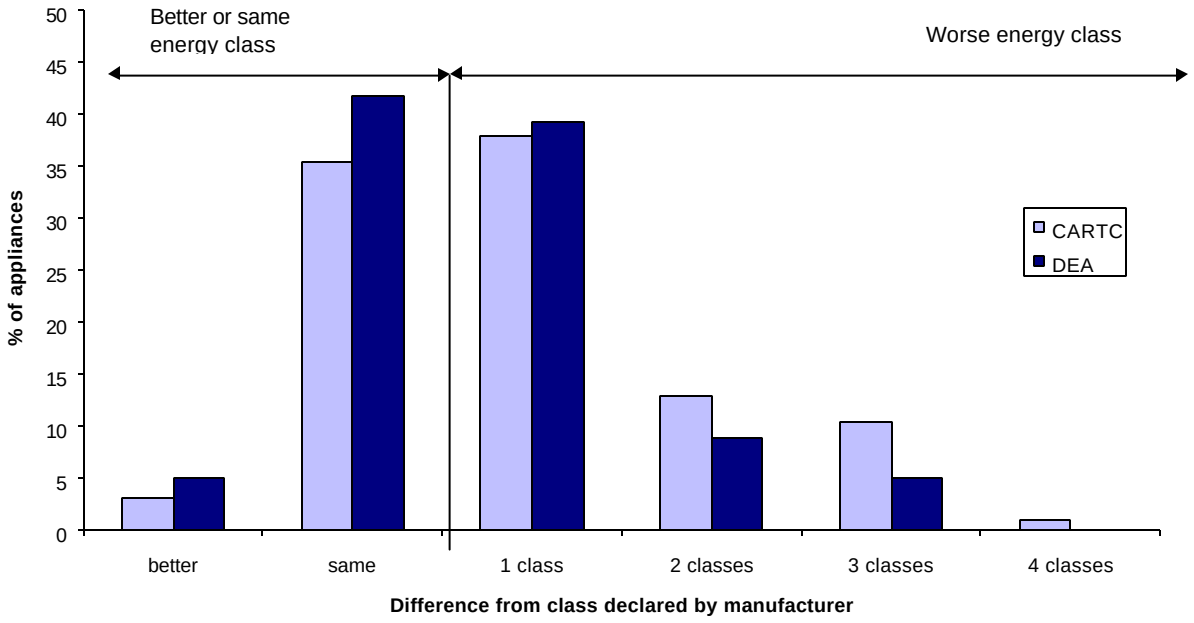


Figure 3.4 Changes in label class with CARTC data and DEA data

Are things improving over time?

Because the CARTC data come from a series of tests spread out over a four year period, it is possible to draw tentative conclusions about the trend in accuracy of declared performance over time. Figure 3.5 compares figures for results falling within 15% of declared figures and those outside it by date of the test. It is perhaps possible to detect a small improvement over the period. However, the improvement is far from impressive. Even in the 1997 tests, a third of the appliances gave test results more than 15% greater than declared values. The picture is also a mixed one, with different rates of change in different appliance types. In the case of refrigerators, there appears to be a deterioration, with results diverging more in 1997 than in earlier years.

Effect of minimum standards

From October 1999, the sale of the least efficient appliances will be prohibited under the terms of Directive 96/57/EC '... on the energy efficiency requirements of household electric refrigerators, freezers and their combinations'. In practice, the directive will lead to the withdrawal of new appliances in energy groups D to G, except in the case of chest freezers, where the affected group will be F to G. Forcing the complete withdrawal of models from the market is clearly a more significant step than simply requiring them to be labelled, so the accuracy of declarations is still more pressing. As with the labelling directives, Directive 96/57/EC relies on manufacturer self-declaration, based on tests conducted according to EN 153. An Annexe to the directive specifically allows for the 15% tolerance specified in EN 153 to be applied.

It is interesting to examine how the appliances tested by CARTC and the Danish Consumer Agency would fare under the new directive. Among the appliances tested in Denmark, 67 would survive on the market according to the energy classes declared by the manufacturers; from the CARTC data on refrigerators and fridge-freezers, 113 would survive. According to the test data from CARTC and the Danish Consumer Agency, however, 50 of those 180 models actually fall outside the provisions of the minimum standard directive (28%). Almost a third of the tested models that would remain on the market after the directive is implemented would not do so if their class was based on the data produced by the consumer organisations. In over half of these cases, the appliance concerned jumps two or more classes: this applies to 15% of the 'surviving' appliances. Models with inferior performance, according to the consumer groups' data, would remain on the market while better models would be removed.

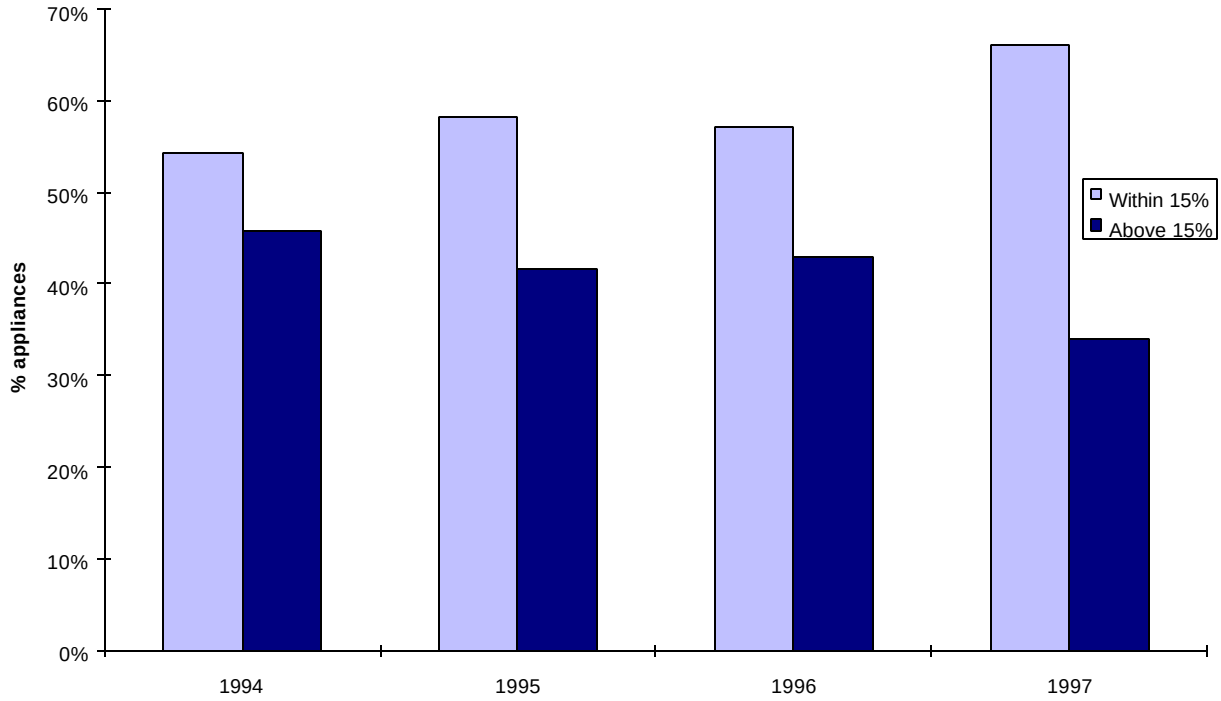


Figure 3.5 Difference between energy use declared by manufacturers and CARTC test results 1994-97

TNO pilot project

Under the 1998 SAVE project round, TNO (led by Sietze van der Sluis) will organise a series of tests under which one or two cold appliances will be circulated around the test laboratories of the various parties (manufacturers, consumer groups and independent testing laboratories) and the variation of tests will be analysed. At the same time there will be a degree of circulation of the testing personnel in an attempt to reduce variation in test methods, increase mutual confidence, identify problems and so forth. This should reduce the scope for manufacturers and others to claim that the reason for differing results was that the test laboratory did not follow the test procedure correctly.

discussion

Dealer compliance

The results indicate that the average compliance level across the Community is low, averaging only 56%. There are large differences between Member States, though in only three Member States (Denmark, the Netherlands and the UK) were more than 70% of appliances correctly labelled 30 months after the directive became mandatory. The Italian consumer is the least likely to encounter the Energy Label: only 17% of appliances surveyed in Italy were labelled. At the other extreme, 94% of appliances in the Netherlands were labelled. Broadly speaking, compliance was found to be lower in the Southern countries. This is particularly unfortunate, as energy efficient cold appliances offer the biggest potential savings in hotter countries, particularly when temperatures of over 30ºC are experienced. The low level of coverage means that the consumer in many countries may not have full information available when choosing a cold appliance.

In Chapter 2, support for the Energy Label by Member State governments was reviewed. Governments have a necessary (but not sufficient) role in the successful implementation of the scheme. Through the timely implementation of the directives in domestic law and through information campaigns, governments

can send an important signal about the value of the scheme to consumers as well as to dealers and to suppliers. Through regular monitoring of compliance and by taking enforcement action when necessary, governments also send an clear signal to dealers and suppliers that the scheme is being taken seriously by the State.

As far as the presence of the Label at the point of sale is concerned, there appears to be only a weak relationship between timely implementation in domestic law and compliance. However, if the timing of implementation is coupled with the level of monitoring and enforcement activity as well as with the presence of an information campaign, it may be possible to discern a pattern which begins to explain the differences in compliance levels found in the survey. Figure 3.1 showed the compliance level as a function of the timing of implementation. The low levels of compliance found in Greece, Portugal and Spain, in spite of early implementation by all three countries, might be explained by what appears to have been a relatively low level of monitoring and enforcement activity. This is particularly the case in Portugal and Spain, while in Greece there has been some monitoring and enforcement. The Ministry of Development has reported that, as a result of this action, dealer compliance in the Attica area went up from 20% to 70% between September 1996 and December 1997. Our own survey, conducted in the summer of 1997 in Athens and Thessaloniki, found compliance levels toward the lower end of this range (30%). The outlets surveyed in Portugal had a slightly higher level of compliance than those surveyed in Greece and Spain, which may partly reflect the information campaign carried out by the CCE over a period of six months between January 1995 and February 1996 (Chapter 2). Although this did not include a retailer education programme, it appears to have been a substantial campaign - it will therefore have affected retailers as part of the general public and may in addition have increased the interest of consumers which is likely to have had a motivating effect on retailers.

The high levels of dealer compliance found in the Netherlands, in spite of the delay in implementing the directive, may be related both to the monitoring and enforcement scheme set up in the beginning of 1997 and to the comparatively high level of environmental awareness in the Netherlands (see Chapter 4).

Germany is a special case. Although the relevant directives were only implemented in January 1998, the outlets surveyed in Germany had a compliance level higher than the European average and higher than six Member States which had implemented the directives sooner. There had been little or no monitoring or enforcement of the scheme and no Government-sponsored information campaigns at the time of the survey. The compliance level may possibly be explained, as in the case of the Netherlands, by the high degree of environmental awareness in the German population, and by familiarity with labelling schemes such as *der blaue Umweltengel.*

Other factors, such as dealer perceptions of the consumer's interest and the structure of the retail trade, may also influence dealer compliance: these will be discussed in Chapter 6. However, as 10% of shops surveyed managed to have virtually every cold machine correctly labelled, the implication is that retailer apathy is a major reason for absent Labels throughout the Community.

Supplier compliance

Since the idea of the labelling scheme was first suggested, there has been debate about the accuracy and reproducibility of the laboratory data generated by manufacturers. Chapter 2 showed that by 1997, little monitoring and enforcement of supplier compliance had taken place, and only a few Member States had begun to test the accuracy of the manufacturer declared information on the Label (Denmark, the Netherlands and Sweden). The European consumer organisations regularly report energy ratings for appliances that are different from those given on the Label itself. As part of the present project, data from a series of tests carried out at CARTC on cold appliances between 1994 and 1997 were re-analysed. Test data generated elsewhere in Europe (notably an analysis carried out by the Danish Energy Agency) were inspected to check that the findings reported here were broadly in line with those from other independent

tests. These tests represent the tip of an iceberg, as far as the number of distinct models on the market are concerned. The models tested are chosen to be representative of the market as a whole.

The analysis suggests that the figures declared by manufacturers still diverge significantly from those produced in independent test houses and that manufacturers' declared figures remain strongly skewed towards an 'optimistic' view of the efficiency of their appliances, when compared to those from independent test houses. If the independent laboratory figures are correct, substantial numbers of appliances are mis-labelled, many by two or more bands. This latter point will become particularly pressing with the implementation of minimum standards; independent test data suggest that many of the appliances which will continue to be sold actually have worse performance than some of those that will be removed from the market.

The overall level of compliance is disappointing, both in terms of the number of appliances fully labelled in the shops and in terms of the continuing controversy over the accuracy of the declared values on the Labels. Independent testing was only able to confirm the energy efficiency class on the Label for a little over a third of the appliances tested. Taken together, it is possible that as few as one in five machines in the shops, across all 15 Member States, are accurately and fully labelled. This jeopardises the potential success of the policy and reduces the chances of making real energy savings.

Revisions to the implementing directive are unlikely to be in force until 2001. Therefore the need is to use the present legislation effectively rather than wait for improved regulations. The clear evidence of testing discrepancies between manufacturers and independent laboratories indicates a more powerful role for enforcement agencies. The Commission's project to confirm consistent test procedures is welcome. It should help reduce the scale of the problem, and the public disagreement over the value of the Labels. However, the main task of enforcement will need to be accomplished by Member States.

Monitoring compliance in a retail outlet is relatively easy and inexpensive, and is essentially a local issue - a great deal could be achieved by discussion and gentle threats. In the case of the accuracy of the Label, the monitoring process is both costly and time-consuming. As appliances are traded internationally, there would be clear advantages for a network and information exchange between Member States. This has been developed informally by Denmark, Ireland, the Netherlands and Sweden, and could sensibly be extended, perhaps with specific countries co-ordinating information on individual manufacturers or importers.

CHAPTER 4: RESPONSE OF CONSUMERS

Labelling aims to transform markets for energy consuming appliances by increasing the amount of information available to consumers. It is hoped that, with better information on the energy use of competing appliances, consumers will choose the more efficient ones. This, in turn, will provide incentives both to retailers to stock the more efficient appliances in any particular category and to manufacturers to improve the efficiency of the range of appliances they produce.

General SURVEY MethodOLOGY

Two consumer surveys were undertaken in this study and were designed to explore differences and similarities between different parts of the Community in relation to:

- the way in which people shop for cold appliances in different countries: is the decision to purchase made quickly, or over a matter of weeks? do consumers do much research before buying, and of what sort?

- the significance of energy use in the choice of appliance: what are the main criteria that people apply when choosing an appliance? what significance do they attach to energy use? is energy use important for money saving reasons, or for environmental reasons, or both? what beliefs do people have about the potential savings to be made by choosing more efficient machines?

- the role of Labels in the purchase of appliances: do people recall having seen the European Union Energy Label? do they feel that the Labels have influenced, or will influence, their buying decision?

- other factors in appliance purchase: how much influence, and of what sort, do shop staff have? what role does advertising and promotion play?

A large number of previous surveys have been carried out on these sorts of questions, using a variety of methods. Some have been carried out at local level, often sampled from clients of a particular retail chain or visitors to a particular shopping centre, while other surveys have been national in scope, and sampled from the general population. Surveys have employed the full gamut of social research techniques, including postal questionnaires, face-to-face interviews and telephone interviews, focus groups and so forth.

The criteria used in the two consumer surveys conducted for this project were that:

- only people who had bought, or were in the process of buying, a relevant appliance should be interviewed;

- those interviewed should, as far as possible, be representative of the general population. The ideal was a fully random sample of adults in each country surveyed;

- interviews should be carried out face-to-face, rather than by post or telephone;

- identical questions should be asked of interviewees in all the countries surveyed.

First survey: in-the-home recall survey

Survey methodology

For the first survey, the main part of the research, the chosen method consisted of in-the-home interviews with a sample of people who had bought a refrigeration appliance within the previous twelve months. Survey work was carried out in late 1997 in the 11 Member States where the Directive had been in force for at least the last year (so all purchasers had bought an appliance since the date that Directive 94/2/EC came into force in their country). This excluded Germany, Belgium, Italy and Luxembourg, but covered 60% of the population of the European Union. A list of the participating research agencies is given in Appendix 4.1. Sample selection and interviewing were carried out by local research companies in each country. The initial intention was to draw the samples from the large omnibus surveys which are carried out at regular intervals by many large market research organisations. This was the approach used in most cases; in a few countries it proved more economical to set up *ad hoc* surveys specifically for this project. The samples were drawn from the general population of each country, in a manner close to random. However, as with almost all sampling carried out by survey research organisations, the final level of interview selection was in most cases by quota rather than fully random in the strictest sense.

A minimum of 100 interviews were undertaken in each country. In order to ensure that responses were reliable, respondents who reported having purchased an appliance over the previous period were asked about their level of involvement with the purchase; those who had little or no involvement with the purchase were excluded from the survey. The final tally of interviews completed in this stage of the research totalled 1,749 (Table 4.1).

This approach to sampling treats every national market as a distinct population, and aims to collect a representative sample from each. The proportions sampled in each country are, of course, different from those that would be achieved if the entire population of the eleven countries was treated as the sampling frame. The first line in Table 4.1 compares the total populations of the eleven countries (Economist 1998). The sample size (on the basis of standard probabilities) for each country needed to achieve the same overall sample of 1,749 is given in the second line of Table 4.1.

Table 4.1 Total population compared with expected and actual sample size

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Population (m)	8.1	5.3	5.1	58.4	10.5	3.7	15.5	9.9	39.3	8.9	59.1
Expected sample	63	41	40	456	82	29	121	77	307	70	462
Actual sample	153	113	152	331	100	101	183	100	213	100	203

On this basis, some countries have been under-sampled, others over-sampled. If the statistics are to be re-aggregated to give a population estimate for the whole eleven countries, national weightings would need to be applied. In practice, the results reported below mainly reflect the initial assumption that - at least as far as the subject matter of this study is concerned - the eleven markets are best treated separately. Because the differences between them in many key respects are so large, attempting to present an overall average for the eleven would be misleading. In a few cases, however, particular sub-groups of the populations have been aggregated. In most cases, the nature of these groups (for example, those spontaneously mentioning energy use as a factor in choosing an appliance) means that national differences are suppressed, and weighting by national origin makes little difference to the results. Where nationally weighted figures diverge substantially from the raw data, weighted figures have been used.

The way in which people shop for cold appliances in different countries

The survey shows some notable similarities between the countries surveyed, as well as some notable differences.

Shops used

A fairly consistent pattern of shop usage emerged though, as mentioned in Chapter 3, such descriptions should be treated with caution as the precise definition of types of shop varies from country to country (this issue will be discussed in Chapter 6). In each of the eleven countries, specialist electrical multiple retailers were the single most popular type of outlet from which appliances had been purchased, accounting for over half of all purchases in almost every country. The two exceptions, Austria and Portugal, were also the only two countries where small local shops accounted for more than a quarter of purchases. The role of department stores varied widely; their role was negligible in Denmark, France and the Netherlands, while they accounted for almost one-third of total purchases in Spain and Portugal. Hypermarkets were significant in France, but almost unmentioned elsewhere. A proportion in every country had bought the appliance as part of a fitted kitchen; the proportion is small in most cases, though in Austria and the Netherlands fitted kitchens accounted for 12% and 18% of appliance purchases respectively. Mail order was non-existent or trivial in most countries; exceptions were Austria and the UK, where it accounted for 5%, and the Netherlands (4%).

Time taken to purchase

As described in Chapter 1, the labelling directive specifies both the Labels themselves, and an additional fiche, the latter normally included in manufacturers' brochures. The fiche was introduced in order to give the consumer an additional source of information to the Label, so that consumers who wish to take more time to decide on their purchase can take the information away with them in the same way as other product information.

The time that consumers had taken between deciding to purchase the appliance and the actual purchase proved to be a second point of relative consistency between the countries surveyed. In most countries, those buying on the same day accounted for only between one-fifth and one-quarter of respondents, while in the southern countries - Greece, Portugal and Spain - this proportion was even lower. Over half of respondents had taken a week or more to make the purchase in every country except Austria and the UK, and even in these countries the figure was not far below half. In most countries over a third of respondents reported that they had taken more than two weeks to make the purchase. Only a minority of purchases seem to be pure 'distress purchases', made in great haste on the same day, while the majority of consumers take their time over the decision and take the opportunity to carry out background research on the appliances they are intending to buy. This is significant to the process of consumer choice, as the time taken to make a decision correlates significantly with the amount of research done (Table 4.2).

Table 4. 2 Relationship between time taken to purchase and use of information (%)

Information used	Time taken to purchase			
	Same day	< 1 week	1 - 2 weeks	>2 weeks
Multiple sources	10	17	19	25
One source	27	34	34	44
No research	63	49	47	33

Base: all respondents.
Those saying 'don't know / can't remember' have been omitted.

Background research

Respondents were asked what sorts of background research, if any, they had done before making the purchase (for example looking at brochures, reading magazine articles, asking friends and family for advice). The sources of information used show a consistent general pattern across the eleven countries.

The single most popular method mentioned in almost every country was reading brochures - reported by proportions running from 11% of all respondents in Greece to 53% in Denmark. Specialist consumer magazines and advice from friends or family were popular sources of information in all countries.

The survey responses correspond well with the status and circulation of consumer magazines that undertake comparative testing in the different Member States. On the whole, such publications have been established for longer and have broader circulations in northern European countries than in southern Europe. This is reflected in the survey: specialist magazines are mentioned by between 9-15% of respondents in Austria, Denmark, Finland, the Netherlands, Sweden and the UK. In Greece, Portugal and Spain independent testing magazines have only recently begun to establish significant circulations, and this matched the survey results - respondents in these countries were less likely to mention such specialist magazines as a source of information. Friends and family were a significant source of advice in most countries, and the single most important source in Greece and Portugal.

While the sources of advice used were relatively consistent across the Member States, however, the extent to which shoppers carried out background research varied significantly. In particular, there were very large differences between the number of respondents who reported doing no background research at all before making the purchase: this ranged from 67% of UK respondents to only 19% in Sweden. Scandinavian shoppers seem most likely to consult a variety of different sources before making a purchase (Denmark 32%; Finland 20%; Sweden 45%) while at the other end of the spectrum only 7% in Greece and 8% in the Netherlands reported consulting a variety of sources.

There is a significant relationship between the time taken to purchase and the amount of background research done. In the UK, for example, the proportion of those who did no research at all rises to 83% among those who bought on the same day, but falls to 38% among those who took more than two weeks to decide. At the other end of the scale none of those in the UK who had bought on the same day consulted more than one source of information, whereas almost a third of those taking more than two weeks had consulted two or more sources. The same pattern emerges when the data from all eleven countries is aggregated (Table 4.2). Among those buying on the same day, 63% did no research, while only 10% consulted more than one source. Among those who took more than two weeks to decide, the pattern is reversed: 68% consulted at least one source, 25% consulted more than one, and only 33% reported doing no research at all.

The most important features in choosing a cold appliance

It is assumed that products consist of ‘bundles’ of characteristics, of which energy use is just one, and that most shoppers are balancing several different characteristics when choosing the model to buy. Respondents were asked, without prompting, to list the most important features which they took into account when selecting their cold appliance. Unsurprisingly, the answers revealed a wide range of features which at least some consumers in every country thought were among the most important (Table 4. 3).

In terms of the frequency with which particular features were mentioned, there was less consistency than previous studies might have indicated: it is often stated that price, brand and size are the most significant factors in consumer choice. In the present survey, only size (internal and particularly external dimensions) were frequently mentioned in every country. Other supposedly key factors - brand and price - were mentioned often in some countries, but not in others, and factors such as the availability of maintenance

guarantees were in some cases more frequently mentioned than either price or brand. The top line of Table 4. 4 shows the proportion of respondents in each country who mentioned energy use spontaneously as a major factor in their selection of appliance. Respondents who did not mention energy use were then asked a prompted question, probing whether electricity or fuel use had been important in their choice.

Table 4. 3 Most important features in a cold appliance

Internal dimensions
External dimensions
Price
Special features (including frost free)
Brand/manufacturer
Appearance
Energy use
'Quality'
Environmental aspects
Low noise
Service/maintenance guarantees
Country of manufacture

The variation between countries is striking. The proportion of respondents mentioning energy as a selection factor varies from 67% in Austria to only 3% cent in Greece. In several countries, energy use was more frequently mentioned than factors such as brand and price, indeed in Austria and Denmark it was the single most frequently mentioned factor, while in Sweden it was second only to the size of the appliance. At the other extreme, in Greece, Ireland, Spain and the UK, not only were spontaneous mentions of energy as a selection factor low but, when prompted, relatively large proportions of those questioned said that energy use was not important as a factor in choosing refrigeration products.

Table 4. 4 Importance of energy use in selecting a cold appliance (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Spontaneous mention	67	65	24	22	3	10	31	26	14	45	8
Very important	14	4	13	7	16	3	23	16	13	10	12
Fairly important	8	13	32	17	25	13	19	17	22	26	17
Not important	10	18	30	49	49	57	22	27	51	16	58

Base: all respondents.
Those saying 'don't know / can't remember' have been omitted.

On the basis of these results, the eleven countries can be classified into three main groups. At one extreme are the four countries where energy use is of high priority in the choice of appliances. These countries (Austria, Denmark, the Netherlands and Sweden) are primarily characterised by the high proportion of respondents who spontaneously mention energy use as a selection factor (both absolutely and relative to other features mentioned) and the very low proportion of respondents who, when prompted, positively dismiss energy use as unimportant. In these four, the proportion either spontaneously mentioning energy use, or saying that it is a very important characteristic, greatly outweighs the proportion dismissing

it as ‘not important’. The reverse is true of a group of five countries (France, Greece, Ireland, Spain and the UK). The remaining two countries (Portugal and Finland) lie between these two groups.
This one-off survey cannot identify any changes in attitudes as a result of the, sometimes extensive, government information campaigns reported in Chapter 2. The effect of these could only be identified with time-series data.

Energy use and electricity prices

The opinions of respondents in the different groups of countries referred to above may reflect the importance of domestic energy prices. Comparing domestic electricity prices between countries is not, of course, an entirely straightforward business. Tariff structures will vary from place to place and more than one tariff might be offered (for example day/night tariffs). The three groups described above (based on the extent to which energy consumption is an important factor in appliance choice) have been mapped onto average electricity prices (Figure 4.1). The prices are based on annual electricity consumption of 3,300 kWh at averaged national standard-rate tariffs in 1994 (Electricity Council 1997). Prices are calculated using GDP purchasing power standards. On this basis, the highest national price among the eleven countries surveyed was a little over twice that of the lowest. To test the sensitivity of these assumptions, the table has also been calculated with price data from two different sources (Energy in Europe, September 1997; IEA data). Although these recalculations are not shown, using these different data does not change the conclusions presented below.

It can be seen that there is no relationship between the two factors in Figure 4.1. Within each group there are countries with a range of electricity prices, from among the highest in Europe to among the lowest. It is certainly not the case that consumers in countries with high electricity prices were more likely to mention energy use as a factor in choosing appliances. The differences in the significance which consumers in different countries place on the fuel use of appliances when making purchases are not explained by variations in local prices.

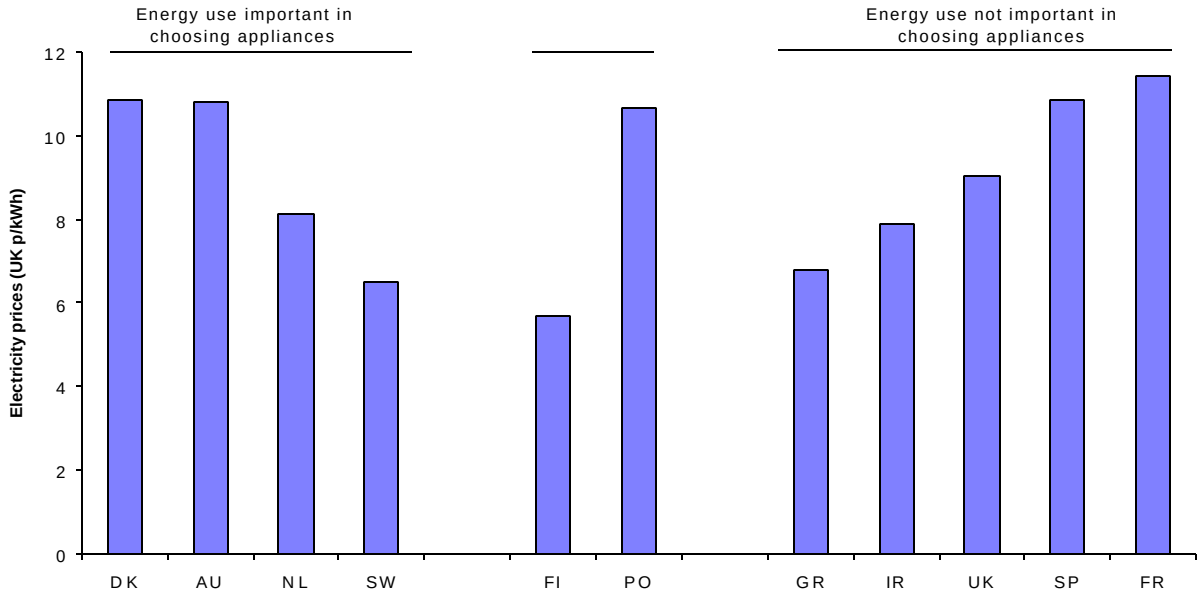


Figure 4.1 Importance of energy use for respondents in relation to average electricity prices

Energy use and environmental factors

The importance of energy as a selection criteria is compared with environmental attitudes reported by respondents. Two measures of this can be tracked from the survey. First, people spontaneously mentioning environmental factors as a criterion in choosing an appliance were recorded (separately from

those mentioning energy use). Secondly, those who said (prompted or unprompted) that energy had been a factor in their choice were probed as to the main reason: was it to save money, for environmental reasons, or both? The results of this second analysis are given in Table 4. 4.

Table 4. 5 Reasons given for rating energy use as an important factor (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
To save money	31	30	55	78	59	38	30	49	65	28	37
Environmental reasons	12	10	14	3	0	1	23	5	8	25	25
Both	57	59	27	12	41	7	46	36	21	42	21

Base: those mentioning energy as a selection factor
Those saying 'don't know / can't remember' have been omitted.

Although the picture that emerges is quite complex, there appear to be some interesting parallels. Consumers in the four countries where energy use is important in choosing an appliance are more likely to mention environmental factors spontaneously as a purchase criterion, and are relatively less likely to say that energy efficiency was only important as a means of saving money. At the other end of the spectrum, in Greece, France and Spain, environmental factors were rarely mentioned as an aspect of appliance choice, while respondents in France, Spain and Ireland were particularly likely to attribute their interest in energy use only to money saving.

In conclusion, there appears to be significant variation between countries in the proportion of respondents who view energy use as a relevant criterion in their choice of new cold appliances. In some countries, this factor was spontaneously mentioned by more respondents than any other single factor. This interest in energy consumption is very weakly, if at all, correlated with high relative domestic electricity prices, but appears to be more strongly associated with attitudes towards environmental factors (an issue explored further below). At the other end of the spectrum is a group of countries for which those who consider energy use to be a significant choice factor (either spontaneously, or when prompted), are outweighed by those who positively say that it did not influence their purchase of a cold appliance.

Energy use and affluence

Although the distinction between the groups of countries cannot be neatly explained by differences in their relative affluence, it is noticeable that all four of the countries in which energy consumption was seen as an important issue in appliance purchasing have relatively high levels of GDP per capita, while consumers in the some of the less affluent European countries are less likely to mention energy use as relevant to appliance choice.

A similar effect can be observed by looking at different socio-economic groups within the survey. International comparisons of socio-economic classes are not simple: different cultures (and different research organisations) approach the construction of such groups in a variety of ways, and may use different classificatory schemes. Table 4. 6 was constructed by aggregating the highest and the lowest economic groups from the research tables of the 11 countries surveyed, using locally-defined criteria. Although the definitions used will not be consistent from country to country, by using only the extreme cases the significance of such differences should be minimised. The table looks at those respondents from the aggregated groups who spontaneously mentioned energy as a factor in choosing an appliance, and those who spontaneously mentioned price. The figures have been weighted to allow for over- and under-sampling from the different countries.

Both groups are more likely to mention price than energy use as a factor. However, those in higher socio-economic groups are more likely to mention energy use than those in lower socio-economic groups.

Conversely, purchase price is more likely to be mentioned by those in lower socio-economic economic groups. While this finding might not be particularly surprising, it is perhaps ironic: in most market surveys, the initial purchase price of appliances varies more or less randomly with their energy efficiency (DECADE 1997a). It is usually possible, therefore, to buy a relatively cheap appliance with a good level of energy efficiency, giving lower lifetime costs. By concentrating exclusively on initial purchase price, many of those in lower socio-economic groups may actually lose money.

Table 4. 6 Spontaneous mention of energy and purchase price, by social group (%)

	Highest socio-economic group	Lowest socio-economic group
Energy use	41	26
Purchase Price	59	74

Weighted by country

Role of Energy Label

Recall of Energy Label

Respondents who had bought from shops were asked if they had noticed any energy labels on appliances (Table 4. 7).

Table 4. 7 Recall of any energy labels by country (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Yes	46	66	61	61	9	30	57	44	41	48	48
No	31	25	34	32	80	36	33	30	57	22	49

Base: All respondents

Those saying 'don't know' have been omitted.

Respondents were then shown a picture of the EU Energy Label, and asked specifically if they recalled seeing this particular label when shopping for their cold appliance.

Table 4. 8 Recall of EU Energy Label by country (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Definitely saw	41	66	53	48	12	45	56	38	32	55	57
Think they saw	18	9	12	8	20	13	9	24	13	15	6
Did not see	14	18	27	32	64	29	26	13	20	23	33

Base: All respondents

Those saying 'don't know / can't remember' have been omitted.

Figure 4.2 compares recall rates in the different countries with the levels of compliance in the shops, reported in Chapter 3. It shows the two sets of data alongside each other, ordered according to recall rates. There is a close - perhaps surprisingly close - match between the compliance data and the recall data. The compliance figures refer to the proportions of appliances that are fully labelled. Even in countries where this figure is comparatively low, some appliances will be labelled, so more shoppers should have encountered examples of the Labels than the overall compliance figures might suggest. Although the shapes of the two histograms do not match precisely, the broad shape is strikingly similar: on the whole,

countries where compliance is high show higher levels of recall, countries with lower compliance have lower recall. Of the three countries (Finland, Portugal, Spain) where recall was higher than compliance, two (Finland and Portugal) had had major government information campaigns.

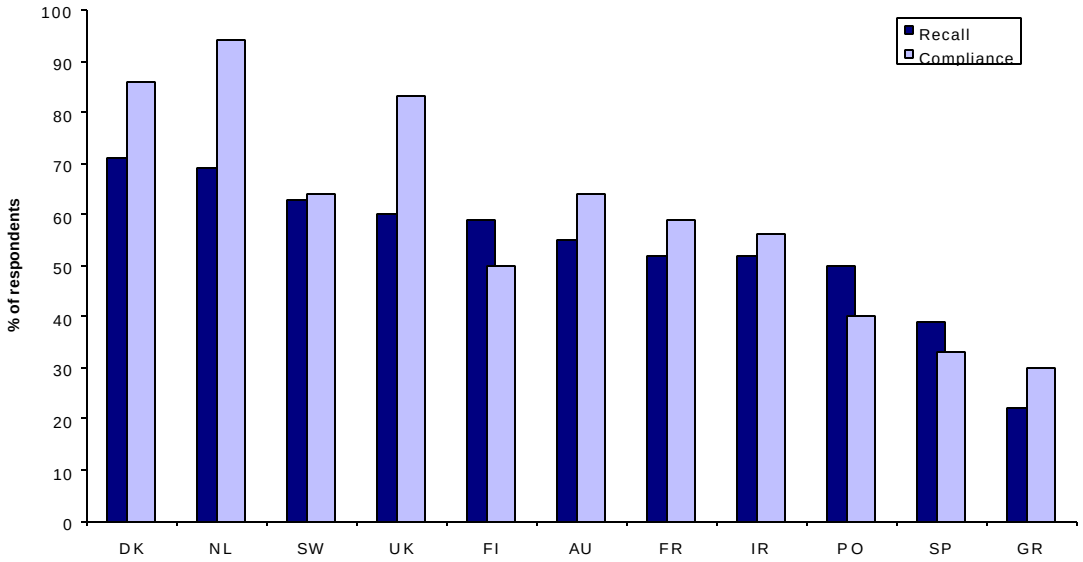


Figure 4. 2 Recall compared with compliance (%)

Based on prompted recall of the Energy Label. Responses have been weighted: 'yes I definitely saw this label' has been given a weighting of 1, 'I think I saw it' has been given a weighting of 0.5. Data from the Netherlands and Austria have been reworked to exclude the relatively large proportion in those countries who bought appliances as part of a fitted kitchen.

For comparison, the relationship between recall and spontaneous mention of energy as a factor in appliance selection (Figure 4. 3) is not nearly so clear as that between compliance at the point of sale and recall of the Energy Label. It appears to be primarily the presence of the Labels that determines recall, rather than personal interest in the energy use of appliances.

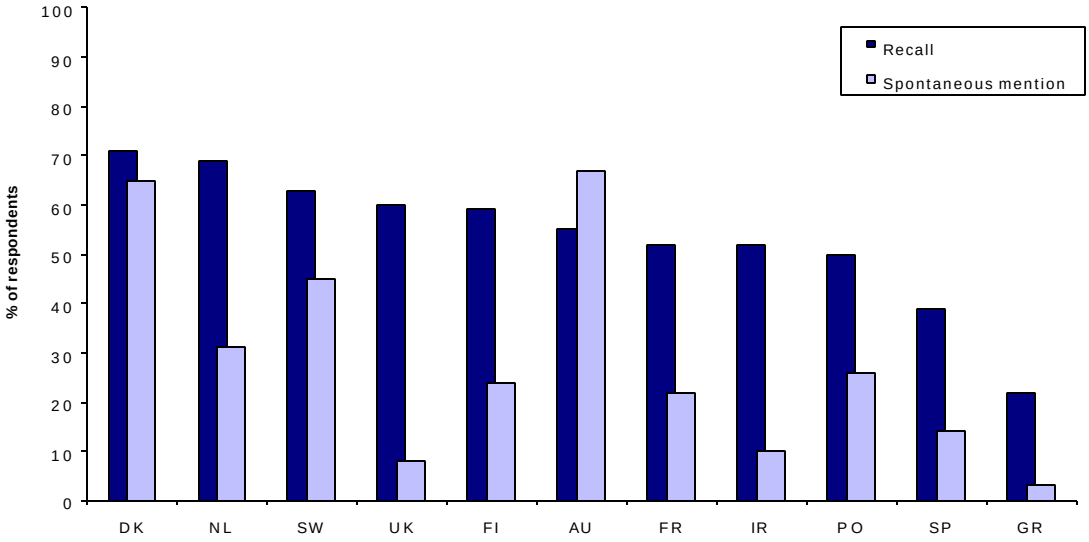


Figure 4. 3 Recall compared with spontaneous mention of energy (%)

The recall of the Label by different types of consumer is compared in Table 4. 9 to Table 4. 11. There is little difference in recall rates according to the amount of time taken over the purchase. As noted above,

the idea behind providing energy information both as a label on the appliance itself and on a fiche was to target separately those consumers who are making 'distress purchases' and those who are spending more time on the selection. The survey suggests that the Label is succeeding in this respect: the Label is noticed by those shopping 'in a hurry' as much as by those who take longer to decide.

Table 4. 9 Recall compared with time taken to purchase (%)

	Same day	<1 week	1-2 weeks	>2 weeks
Definitely saw	53	55	56	54
Think they saw	12	14	14	15
Did not see	35	31	30	31

A distinction between groups of consumers does begin to emerge when recall of the Energy Label is compared with the amount of 'research' done (Table 4. 10). Those who undertook thorough research before buying more often recalled the Energy Label than those who did no research. It seems likely that this reflects different attitudes towards shopping - 'information seekers' appear to be more likely to recall having seen the Energy Label, though the distinction is not great.

Table 4. 10 Recall compared with amount of research (%)

	Several sources	One source	No research
Definitely saw	67	54	50
Think they saw	16	14	13
Did not see	17	32	37

A still bigger difference emerges when recall of the Energy Label is compared with the level of significance placed on energy as a criterion for purchase (Table 4. 11). Those who spontaneously mentioned energy as a factor in their choice of appliance were significantly more likely to recall seeing the Energy Label than those who said that energy use was unimportant to them.

Table 4. 11 Recall by significance of energy as factor (%)

	Spontaneous mention	Not important
Definitely saw	66	40
Think they saw	21	15
Did not see	14	44

While there are differences in recall rates between different groups of consumers, especially in relation to the amount of research done (Table 4. 10) and the importance of energy as a criterion when selecting an appliance (Table 4. 11), these differences appear to be somewhat less significant than the national differences between recall rates (Table 4. 8), which are linked in turn to compliance rates for appliance labelling. In general, if the Labels are placed on appliances, they tend to be noticed by consumers, although they are more likely to be recalled by those who have a greater interest in energy use as a buying criterion.

Reported influence of Energy Label

Finally, consumers who definitely recalled seeing the Label, or who thought they remembered seeing it, were asked whether it had had any influence on their purchasing decision (Table 4.12). There was great variation in the degree of influence reported by respondents: those in Denmark and Austria were most likely (61% and 51%), while Greek and Irish respondents were the least likely (3% and 7%) to say that the Energy Label had influenced their purchase. As expected, the national results largely reflect the groupings of countries based on the importance of energy use to the choice of appliance described above, though the proportion of respondents who say the Label influenced their choice is perhaps lower than would be expected in Sweden, and a little higher in France.

Table 4.12 Whether Energy Label influenced purchase (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Strong influence	50	61	25	28	3	7	41	13	15	23	14
Little influence	16	14	37	28	9	19	29	44	27	33	23
No influence	27	24	37	40	72	66	29	34	56	37	60

Base: those who had seen, or thought they had seen, the Label.
Those saying 'don't know / can't remember' have been omitted.

The strongest influence on the impact of the Label, unsurprisingly, was attitudes towards energy use as a factor in choosing an appliance. Those who were not interested in the energy use of appliances were much more likely to say that the Label had had no influence on their decision (Table 4.13).

Table 4.13 Whether Energy Label influenced purchase, by importance of energy consumption as a factor in choosing an appliance (%)

	Spontaneous mention	Very important	Not important
Strong influence	58	42	2
Little influence	27	31	12
No influence	15	27	86

Base: those who had seen, or thought they had seen, the Label.

As noted above, the significance of energy use as a purchasing criterion various from country to country. The final outcome in each national market - the proportion of people who are actually influenced by the Label when making a purchase - is therefore largely a product of two factors: the proportion of appliances in the shops which are labelled (which in turn strongly influences consumer recall of the Label), and attitudes towards energy use as a purchasing criterion. Table 4.14 combines the findings: it shows the overall proportion of the respondents in each country who both recall seeing the Label, and who report that the Label had some influence on their purchasing decision.

Table 4.14 Influence of the Energy Label compared with level of compliance (%)

	AU	DK	FI	FR	GR	IR	NL	PO	SP	SW	UK
Label influenced purchase	39	56	41	32	4	15	45	35	19	39	24
Compliance level (from Chapter 3)	64	86	50	59	30	56	94	40	33	64	83

Base for row 1: all respondents.

High levels of labelling do not necessarily translate into a high proportion of respondents saying that the Label will influence their choice of appliance. The relationship is not as direct as that between compliance levels and simple recall of the Label. There is, nevertheless, a significant relationship between the two. This emphasises the importance of ensuring that compliance levels are maximised. The survey also underlines the importance of establishing the significance of energy use in the minds of consumers.

Second Round of Surveys

Survey methodology

Although recall questions were thought to be appropriate for most of the issues to be explored, other questions addressed in the research were not considered likely to be successfully dealt with by this technique. Issues such as interactions with shop staff are more appropriately explored when the experience is fresh in the mind of the respondent, and the same applies to a closer examination of the relationship between energy use as a criterion in purchasing an appliance, and beliefs about environmental issues. A second, more modest, round of research was undertaken, in which individuals who were in the process of shopping for electrical white goods were interviewed outside various types of store (the majority were shopping for cold appliances, but some interviews were carried out with those buying washing machines, which should also carry Energy Labels). This round of interviews was designed when the research project was underway and after information on the presence of Labels in the shops of the various Member States (Chapter 3) had been collected. It was therefore possible to select countries with different levels of labelling, in order to explore responses from consumers in different contexts. Countries were divided into four groups:

- those where the domestic legislation implementing Directive 94/2/EC had come into force, and a high proportion of appliances carry Labels. (UK, Netherlands);
- those where the domestic legislation implementing Directive 94/2/EC had come into force, but a relatively low proportion of appliances carry Labels (Spain);
- those where the domestic legislation implementing Directive 94/2/EC had not come into force, and few appliances carry Labels (Italy);
- those where the domestic legislation implementing Directive 94/2/EC had only just been introduced into law, yet a relatively high proportion of appliances had carried Labels for some time (Germany).

In every country, about 150 individuals were interviewed. Because the sample was not randomly chosen from the populations at large, the results should not be extrapolated to the general population, but can only be treated as indicative of the views of those shopping for appliances. These five countries represent two-thirds of the EU population.

Views on energy, the environment and the influence of the Energy Label

The second survey reinforced the view derived from the larger survey that countries divide fairly sharply into those where energy is an important criterion and those where it is not. As expected, a large proportion of respondents in Germany and the Netherlands rated the energy use of appliances as a very important factor in choosing an appliance, compared to those in Spain and the UK. Respondents in the UK were particularly likely to say that energy use was positively unimportant. The response from Italy, in contrast to some of the reports from manufacturers, appeared to be more like that of the Netherlands and Germany than the UK. Respondents in the Netherlands and Germany were also relatively likely to report that the Energy Label would be likely to influence their eventual purchase, especially when compared to those in the UK and Spain. The potential impact of the Label should not be understated, however: even in the UK, only around one-third of consumers said that they were positively not likely to be influenced by the Label.

This survey also confirmed the relationship between compliance levels, recognition of the Label and the significance given to energy use as a factor in selecting appliances, as described above. Once again, the proportion of respondents who recalled seeing the Label in each country corresponded closely to the compliance levels.

As noted above, the differences between the emphasis placed on energy efficiency by consumers in different countries cannot be explained by higher or lower electricity prices. In order to explore further the relationship between views about potential savings and interest in energy, respondents were asked to estimate the difference in energy consumption between the most efficient and least efficient machines currently on the market. In most countries, the most popular (modal) response was 'twice as much', though in Spain in particular, a large number guessed that the energy use would be the same for all appliances on sale. Overall, there was a rather weak link between beliefs about the differences in energy use of the appliances on offer, and the significance placed on energy use when deciding which model to purchase. There may be a small tendency, however, for those who place a low estimate on the potential for energy savings to say that energy use is 'not important'. As the energy consumption of cold appliances on sale at any one time can vary by a factor of two to three for a similar adjusted volume, a significant proportion of consumers, particularly in Spain and Italy, appear to underestimate the potential for energy saving in this area.

As noted above, it appears that attitudes towards the environment might be a more useful way to distinguish between different countries or groups. When asked to rate the importance of a range of potential social issues, respondents in Germany and the Netherlands were particularly likely to emphasise environmental issues. In all five countries, the environment was the social issue ranked first or second in importance. The ways in which environmental concern filters through to individual action appear to vary from country to country. In Germany and the Netherlands, individuals who report concern about the environment are also more likely to name energy use as a selection factor in choosing an appliance. In other countries this relationship is less clear - those expressing concern about the environment are scarcely more likely to place a high value on energy use than those that do not. The impression of different cultural mechanisms at work is strengthened when looking at the reasons that people give for saying that energy is important. In all five countries, cost saving was widely given as a reason. In Germany and the Netherlands, however, this was often accompanied by a statement about the environmental benefits of a more efficient appliance. This was much less common in the other countries surveyed (Table 4.15).

Table 4.15 Significance rating of different social issues (%)

	GE	IT	NL	SP	UK
Environment	67	53	63	37	55
Health	26	39	56	23	37
Unemployment	68	66	25	81	35
Pensions	30	13	19	21	9
Crime	20	39	52	27	62
Prices	16	7	11	22	13
Housing	11	15	19	23	23
Education	10	21	12	7	40

However, the relationship is a rather subtle one. When presented with a list of specific actions that individual consumers could take to help protect the environment, reducing energy use in the home came second in every country except the UK - recycling was clearly the first choice everywhere (Table 4.16).

This suggests that the message about energy saving and the environment has been noted by consumers in every country. However, there was only a weak link between mentioning household energy saving as an important environmental action in principle, and mentioning energy use as an important factor in the personal choice of appliance. Only in Germany did there seem to be a clear connection between the two. It is also worth noting that there was actually a negative relationship between rating buying green products as an important action, and mentioning energy use as a factor in choosing an appliance; it does not seem that efficient appliances are regarded by consumers as falling into the category of green products.

Table 4.16 Specific actions that consumers can take to help protect the environment (%)

	GE	IT	NL	SP	UK
Recycling waste	68	81	61	83	79
Using recycled paper	18	14	13	15	9
Using unleaded petrol	28	39	31	20	53
Buying green products	30	19	11	35	16
Household energy saving	50	43	59	41	43

More than one answer/respondent

The relationship between environmental concern and an interest in the energy use of appliances therefore seems to be far from direct. Rather than constituting a clear, targeted environmental action, the choice of a more energy efficient appliance appears to reflect a much more diffuse process. These findings can be tentatively read as confirming the remarks made by some retailers (Chapter 6) that the significance of the energy use of appliances as a purchasing criterion is linked to a broader interest in the quality of the appliance - including, in some cases, an interest in its environmental quality. This in turn can be associated with the data reported above which suggest a link between an interest in energy use and higher levels of both individual and national affluence. Rather than being seen as a mechanism for saving money, efficient appliances may more often be valued for their environmental quality, and environmental quality may have the characteristic of a luxury good.

Trust in the Energy Label

Respondents were asked who they believe is responsible for ensuring that the information on the Labels is accurate. The most popular choice was the Commission itself, perhaps because respondents had been shown the Label, which carries the Community flag. Very few respondents in any of the countries believed that no-one was responsible for ensuring label accuracy. The proportion who thought that responsibility for accurate information lay with the individual manufacturer ranged from 11% in the Netherlands to 27% in Italy.

Trust in the Labels (to give reliable information) was particularly high in Germany and Netherlands (in the latter over half rated them very trustworthy). Those positively mistrusting the information on the Labels ranged from only 2% cent in the Netherlands to a quarter in Spain. The level of trust in the Labels is particularly high in those countries where energy use is most likely to be taken account of in choosing an appliance, though it is not clear that this is a causal relationship. There does seem to be a relationship between the degree of trust in the accuracy of the Label, and a willingness to be influenced by it. It is not a very strong relationship, however, and is mainly detectable as a tendency for those who positively say they are not likely to be influenced by the Label to express mistrust in the information it carries. The issue of trust does not, on this evidence, seem to be major issue standing in the way of acceptance of the Labels.

Role of shop staff and understanding of the Energy Label

The proportion of shoppers who reported having discussed appliances at all with shop staff varied from less than a third in the UK to almost two-thirds in Spain. Where discussions did take place, they quite

frequently covered energy use or running costs. The pattern largely reflected the findings already reported: shoppers in Germany and the Netherlands were more likely to have discussed energy or running costs, those in the UK and, in this case, Italy were less likely to have done so. Overall, just under one-fifth of all those interviewed had discussed energy or running costs; in about half of all cases the issue was raised by the consumers themselves, in the other half, it had been raised by the shop staff. The advice seems to have been straightforward: only a very few cases were reported in which the shop staff had suggested that differences in energy use were unimportant. Despite the emphasis placed by retailers themselves on the need for energy use to be converted into money savings, few of the reports that consumers gave of their discussions specifically suggested that this had happened. It is not clear whether it is shop staff themselves who are failing to promote lower energy appliances as cost-savers, or consumers who are not remembering (or not reporting) that message. A clear majority in every country described the advice received from shop staff on energy consumption as useful.

When asked what the Energy Label itself was trying to communicate, the great majority of consumers expressed no difficulty in interpreting the main message, and there were very few cases where the Label was clearly being misinterpreted: “To save electricity, buy more efficient models”; “An assessment of the energy [use] per year”; “The larger the arrow, the less efficient the machine is”; “Green most efficient, red least”; “Green - least consumption, red - most”; “Green - good, red - bad”; “G appliance less efficient”. There were regular references to the Label as an environmental indicator: “A is more ecologically friendly”; “Save energy to save money and the environment”. When asked directly whether anything about the Label was confusing, a sizeable minority named something which they found confusing, but no clear theme emerged: “Noise levels unclear”; “Don’t know what kWh/year means”; “Don’t know what dB(A) re 1 pW means”; “efficiency unclear”. Sometimes, opinions clashed: in Germany, six respondents complained of “too much information on the label”, five that there was “not enough detail”. Although this type of interview is not the ideal mechanism for exploring consumers’ understanding of the Labels in detail, the survey does not suggest that there is a widespread problem in understanding or interpreting the information which the Label carries.

Discussion

The issue of real interest is the proportion of consumers who actually change their buying behaviour as a result of the Labels; it is only by changing their purchasing patterns that consumers will demonstrate that the Energy Label policy is working and that energy is being saved. The link between the Label and actual purchasing behaviour depends upon a complex interaction between:

- the proportion of appliances fully labelled in the shop;
- consumer understanding of the Label;
- consumer concern about appliance energy use;
- consumer concern about the environment;
- trust in the information on the Energy Label;

The research suggests that where Labels are present on appliances in the shops they are both noticed and recalled by consumers, and that the majority of consumers appear to have no difficulty in understanding and interpreting the main message of the Label. The level of compliance in the shops is a highly significant factor. If the Label is not present on sufficient machines, consumers will not be able to use it. A close match was found between the proportion of appliances in the shops that were correctly labelled in an individual country and the level of recall of the Label by consumers in that country. The simple presence of the Labels appears to be a stronger determinant of recall than personal interest in the energy use of appliances.

A strong relationship was also found between the salience of energy use to the individual consumer, and the influence of the Energy Label. This works in both in the positive and the negative sense: 44% of consumers who do not think energy use is important, do not recall seeing the Label at all, while 58% of those who spontaneously mentioned energy use as a factor in choosing an appliance said that the Label had had a strong influence on their purchase. The significance of energy use as a factor in choosing an appliance varies from country to country. In four countries, Austria, Denmark, the Netherlands and Sweden, energy use is a major determinant, as important or more important than brand or price; in other countries, few respondents mentioned it as a factor. The emphasis on energy use is unrelated to the price of electricity: high or low levels of interest in energy use can be associated with either high or low electricity prices. Although less-affluent consumers could benefit most from the cost savings associated with more efficient appliances, those in the lower socio-economic groups were actually less likely to mention energy use as a significant factor in appliance purchasing, and were more likely to concentrate on initial purchase price. Policies aimed at influencing the behaviour of these groups would have social as well as environmental benefits.

Although there is a relationship between environmental concern and an interest in the energy use of appliances, it is not a direct and straightforward one. The linkages between environmental awareness and receptivity to the messages on the Energy Label is not surprising - new information which does not 'fit' with what is already known by a consumer is likely to be either disbelieved, disregarded or reinterpreted to fit with the existing mental models (Banks pers comm). The survey evidence also shows a weak link between mentioning household energy saving as an important environmental action in principle and mentioning energy use as a criterion in the personal choice of an appliance. Although European consumers seem to be widely aware that energy use is an important environmental issue, far fewer appear to link this to their own personal behaviour. A more significant factor may be a connection made between efficient appliances and 'high quality', including environmental quality. This was suggested by some of the retail companies interviewed in Chapter 6 and is tentatively confirmed from the survey evidence. It also corresponds to the finding that concern with the energy use of appliances is linked to higher levels of affluence, rather than with opportunities for saving money. Environmental quality may, in this sense, have the characteristic of a luxury good.

Raising the profile of environmental and energy issues should also have positive feed-back effects on the retail sector. Retail employees are, of course, themselves members of the public and will share those motivations. Perhaps more importantly, if consumers begin to request information on energy use when making purchases, energy use will be seen by retailers as a useful selling point. The extent to which appliances in the shops are fully labelled is only partly a function of enforcement and monitoring. Consumer demand is at least as important a source of pressure. This seems clear in the German example, where compliance levels were above the EU average, even before the relevant directives had been brought into force.

If the Labels are to be influential, consumers must have trust in the information that they carry. This does not - despite the concerns about label accuracy discussed in Chapter 3 - appear to be problematic at present. Trust in the Labels varied from country to country, and was particularly high in Germany and Netherlands (in the latter, over half rated them very trustworthy), but mistrust was not a major issue anywhere. The relationship between the degree of trust in the accuracy of the Label and a willingness to be influenced by it was, in any case, a weak one.

Only a minority of purchases of cold appliances seem to be pure 'distress' purchases: in most countries those buying on the same day accounted for only one-fifth to one-quarter of respondents. In most countries, over a half took more than a week to choose. The Energy Label is noticed as much by shoppers who are in a hurry (bought on the same day) as those who took more than a week to purchase. Those who researched their purchase were more likely to say that they had noticed the Energy Label, although 50% of those who undertook no research still reported that they had definitely seen it. For shoppers who

did no research, the Energy Label is the most important source of information together with information from the retail staff. Among those who carried out research before buying, manufacturers' brochures were clearly the most popular source of information. This suggests that the dual approach of placing Labels on the appliances themselves, with more detailed information in the 'fiche' (normally part of the manufacturer's brochure) is an appropriate one.

The proportion of shoppers who reported having discussed appliances at all with shop staff varied from less than a third in the UK to almost two-thirds in Spain. Where discussions did take place, they quite frequently covered energy use or running costs. The pattern largely reflected the findings already reported: shoppers in Germany and the Netherlands were more likely to have discussed energy or running costs, those in the UK and, in this case, Italy were less likely to have done so. The advice given by shop staff on energy use appears to have been straightforward, and was widely reported as helpful.

Many consumers considerably underestimated the extent to which energy consumption varies between similar machines and hence excluded energy use as a criterion in making their purchase. This again underlines the importance of retail information.

The two keys to improving the effectiveness of the labelling scheme are therefore to increase the proportion of labelled appliances in the shops, and to persuade individual consumers that energy use is an important criterion in buying appliances. A few countries appear to be successful on both fronts. Denmark and the Netherlands, in particular, score highly both in terms of compliance levels and the proportion of the population who mention energy as a leading factor in choosing an appliance. These are also the two countries with the highest proportion of the population saying that the Label influenced their choice of appliance when making a purchase. At the other extreme, Greece and Spain have quite low levels of compliance, and relatively few respondents from these countries mention energy as a factor in buying an appliance. Again, the two countries are at the bottom end of the scale in terms of the proportion of consumers who said the Label had influenced their purchase.

This information is summarised in Table 4.17 for all eleven countries where the in-the-home survey was carried out. The first column gives the proportion of appliances fully labelled in the shops; column two is the importance to consumers of energy consumption when choosing an appliance; and column three is the proportion of consumers who said that the Label had influenced the purchase that they had made. The Table illustrates that the barriers to effectiveness are different in different countries.

Table 4.17 Overall effectiveness of labelling

	Compliance	Importance of Energy Efficiency	Influence of Label on Purchase (%)
Denmark	***	***	56
Netherlands	***	***	45
Austria	**	***	39
Sweden	**	***	39
Finland	**	**	41
Portugal	*	**	35
UK	***	*	24
France	**	*	32
Ireland	**	*	15
Spain	*	*	19
Greece	*	*	4

Note: *** >70%; ** 50-70%; * <50%

The potential for energy savings from cold appliances is related to the weather: cold appliances consume more energy in summer than in the winter, because the ambient temperature in the house is higher. In the UK, the increase is from 10 kWh per week in winter to 16.5 kWh per week in summer, a 65% rise (DECADE 1997a). The benefits of a more efficient appliances will, therefore, result in greater savings in the summer than in the winter. This will be most evident in countries with long, hot summers - particularly when temperatures of over 30ºC are experienced. Unfortunately, compliance with the labelling directive was shown to be low throughout the southern countries. These are the countries where the greatest rewards can be realised.

At the other extreme, there is probably a ceiling on the overall level of influence that labelling could hope to achieve; it may not be possible to influence more than about 60% of shoppers, if only because the limited range of models in some retail outlets and inflexible priorities (e.g. dimensions) will sometimes reduce the consumer's choice to a single appliance.

CHAPTER 5: RESPONSE OF MANUFACTURERS

The purpose of this section of the project was to :

- establish how strategic managers within the European appliance manufacturing sector view the labelling scheme and their opinion of its effect on consumer behaviour;
- review the effect of these beliefs on the strategy of European appliance manufacturers.

Survey methodology

The main part of the research consisted of a series of in-depth interviews with manufacturers across Europe during March and April 1998, carried out by Van Holsteijn en Kemna. In order to give the representatives of the various manufacturers the opportunity to elaborate on issues that are important for their company, and in order to be sure that all issues were covered, semi-structured face-to-face interviews were prepared. A checklist of items to be discussed was sent to each respondent a week before the interview, giving respondents the opportunity to consider their answers (Appendix 5.1).

The wide range of issues to be covered in the interviews (including marketing, research and development and production) as well as the fact that some European manufacturers have more than one brand and often more than one production plant, complicated the task of selecting individuals who could represent each company. The selection of the individual respondents was carried out by the European Manufacturers' Association (CECED) and the companies themselves. The representatives were mainly marketing and/or technical managers, who were able to give an overall, strategic view of the influence of the Energy Label on various company activities.

The interviewees covered the four largest European refrigerator manufacturers (Electrolux, Bosch-Siemens, Whirlpool and Merloni), two medium-sized firms (Fagor and Candy) and a small company (Gram):

- Whirlpool Europe Srl., Comerio, Varese, Italy;
- Bosch-Siemens Hausgeräte GmbH, München, Germany;
- GRAM A/S, Gram Domestic, Vojens, Denmark;
- Fagor Electrodomesticos, Mondragon, Spain;
- Candy Elettrodomestici Srl., Brugherio (Milano), Italy;
- Merloni Elettrodomestici spa, Fabriano (AN), Italy;
- AB Electrolux, Stockholm, Sweden.

A full list of individuals interviewed is given in Appendix 5.2.

Face-to-face interviews were held with the first six manufacturers. A seventh company, Electrolux, answered the questions in writing. After each face-to-face interview an interview report was drawn up and sent back to the respondents, who were asked to approve or to comment on the report. Finally an approved and signed report was obtained for each interview.

Profile of the European cold appliance industry

This section gives a profile of the European cold appliance manufacturing industry, setting out the most important manufacturers and the brand names under which they trade. It is based on the most recent European Supplement to *Appliance Magazine* (November 1997). The cold appliances are split into two groups: refrigerators and freezers (fridge-freezers are included with the refrigerators). The ten biggest

European manufacturers of refrigerators and freezers respectively are given in Table 5. 1. The boundary around Europe is in this case drawn beyond the Community to include Slovenia and Turkey. The figures are in terms of production, and it is assumed that most of this European production is destined for the wider European market including the Community, and that these figures therefore give an adequate indication of the relative importance of different manufacturing groups in the Community.

Table 5. 1 Market shares of production (%)

Refrigerators and fridge-freezers		Freezers	
Electrolux	21.4	Electrolux	17.0
Bosch-Siemens	13.2	Bosch-Siemens	12.0
Whirlpool	12.4	Liebherr	12.0
Merloni	7.4	Whirlpool	10.7
Arçelik	6.5	Ardo Merloni	8.2
Groupe Brandt	5.8	Groupe Brandt	5.5
Liebherr	4.8	IAR	4.0
Candy	4.5	Gram	3.5
G.D.A.	3.3	Merloni	3.5
Ardo Merloni	2.5	Candy	3.0
Others	18.2	Others	20.6

Source: *Appliance Magazine*, European Supplement, November 1997

In both the refrigerator and in the freezer market, four manufacturers account for more than 50% of production. The two groups are very closely matched: in the refrigerator market, production is dominated by Electrolux, Bosch-Siemens, Whirlpool and Merloni, while the freezer market is dominated by Electrolux, Bosch-Siemens, Whirlpool and Liebherr. The three most important manufacturers in the Community cold appliance market are therefore Electrolux, Bosch-Siemens and Whirlpool.

In the majority of European countries the appliance manufacturers work together through national trade associations, which represent the combined interest of the associated companies in the country. National trade associations are members of CECED and some individual manufacturers are also members of CECED in their own right (Appendix 5.3).

The relationship between brands and manufacturers is complicated (Table 5.2). Because of the dynamic nature of the market, a description of this relationship becomes to some extent a moving target. This

Table 5. 2 Relationship between manufacturers and brands

Manufacturer	Brands
Electrolux	Electrolux, AEG, Zanker, Zanussi, Frigidaire, Cobero
Bosch-Siemens	Bosch, Siemens, Neff, Constructa, Balay, Pitsos
Whirlpool	Whirlpool, Bauknecht, Ignis
Merloni	Ariston, Indesit, Scholtes, Merloni
Groupe Brandt	Blomberg, Ocean, Vedette, Elektrabregenz, SanGiorgio, Thomson
Candy	Candy, Hoover, Rosieres, Zerowatt.
General Domestic Appliances	Hotpoint, Creda, General Electric

Sources: *Appliance Magazine*, European Supplement, November 1997; Manufacturers' websites.

complexity was also commented upon by the Group for Efficient Appliances in the *Study on Energy Efficiency Standards for Domestic Refrigeration Appliances* (GEA 1993):

many of the manufacturing groups sell their products throughout and outside of the EC under several different brand names. Thus, exactly the same appliance might be offered by competing brands, some of which may be members of the same manufacturing group. In addition many appliance firms supplement their own production or obtain all of their supply by purchasing units manufactured by completely independent manufacturers in or outside the EC.

survey findings

General attitudes to the Energy Label

All manufacturers interviewed expressed a positive attitude towards the labelling scheme, although some said they had thought differently in the past. Candy reported that it considers the Label to be a highly successful policy instrument. Because of its commercial impact it is now playing an important role in the competition between manufacturers. Candy is convinced that the Energy Label is powerful and pushes manufacturers far beyond levels set by obligatory minimum standards. Merloni generally saw the Energy Label as a very good opportunity to inform consumers about energy consumption, and as having had a real impact on the product development programme, increasing the priority of energy conservation from as early as 1994. Whirlpool reported that its attitude to the Energy Label had improved from being "not negative" to being "positive. One of the advantages perceived by Whirlpool was that the Energy Label makes it easier to compete on quality with manufacturers and brands at the lower end of the market. However, Whirlpool added that the Energy Label had also introduced the problem of competitors declaring incorrect values suggesting higher quality, usually at a lower price. Overall Whirlpool saw the Energy Label as an effective instrument which could potentially be much more effective than minimum standards if managed correctly with respect to reliability of declared data. Gram's general impression was that the Energy Label has proven to be a very good and effective instrument for the promotion of energy efficient cold appliances. In addition the Energy Label is seen by Gram as a perfect means to stimulate energy improvements, variable speed compressors and vacuum panels in particular. However, the respondent added that if the higher product price (to the consumer) of these efficiency improvements cannot be paid back within 3-5 years through lower running costs, further efficiency improvements will become very difficult commercially.

Distribution of the Energy Label

It was noted in Chapter 2 that the Energy Label consists of two parts: generic colour background and the model specific data-strip. In principle the supplier can choose to supply the two parts as one whole Label or as two separate parts. The colour background is language-specific, but can be applied to any model; the data strip is model-specific, but can be used in any country. If the Energy Label is supplied as two parts (which then have to be combined by the dealer) these can in principle be supplied through the same distribution route or through different distribution routes. The survey suggests that the mode of distribution preferred by suppliers is to distribute the colour background and the data-strip separately. The two are therefore discussed separately below.

Distribution of the colour background is mainly handled through the national trade associations of manufacturers and importers. As part of wider promotional campaigns by the associations, colour backgrounds have been issued to retail chains and individual retailers through mailings and on special order through a telephone help desk. They were accompanied by leaflets explaining the background to the labelling scheme. In some cases, these leaflets were developed by the industry, for example the brochure produced by the German manufacturers' trade association (ZVEI). In others they were prepared by national energy agencies (e.g. NOVEM in the Netherlands) or by other government institutions. Member State governments have also (co)financed distribution and/or campaign costs in some instances.

A second distribution route for the colour background is through individual manufacturers. Practically all manufacturers now distribute colour background to retailers on request. Some manufacturers, such as Merloni, have started to handle it like a spare part, allowing orders and distribution to be carried out through the standard spare-part ordering system.

The manufacturers surveyed reported only one distribution route for the data-strips: supplied exclusively by the manufacturer of the individual appliance and included in every product leaving the gates of the production plant. Most manufacturers supply the data-strip inside the cabinet, packed in a plastic bag together with the user manual. One problem is that some retailers are reluctant to break the seal on the bag containing the manual, as they fear that it makes the product look "used" in the eyes of the customer. Bosch-Siemens had chosen to attach the data-strip partially to the outside of the appliance at source, as a way of getting around this problem and to make it easier for the retailer to label the appliance.

In addition, 'own design' labels are used by a few retail chains (e.g. Karstadt in Germany and Darty in France, described in Chapter 3 above). These labels are almost identical to the standard Energy Label, apart from the logo and name of the chain. Some manufacturers expressed bafflement about the reasons behind such labelling, believing that a neutral colour background is likely to be more effective in influencing the consumer.

Views about relationship with retailers

All manufacturers interviewed, except for Electrolux and Whirlpool, gave estimations of the proportion of appliances labelled in retail outlets. Fagor and Gram made comments specific to cold appliances, while Candy, Merloni and Bosch-Siemens' comments did not distinguish between appliance groups. Perceptions varied a great deal, but in all cases views on the level of compliance were extremely optimistic. Candy believed that the proportion of appliances labelled in France and the UK was in excess of 90%. By contrast, Gram estimated that 99.9% of cold appliances in Scandinavia are labelled. Candy estimated that about 50% of appliances in Italy and Spain were labelled, while Fagor put the proportion of appliances labelled in Spain at 40% (cold). Merloni thought that about 70% of appliances in Italy were labelled. These estimates overstate the proportion of appliances that are actually labelled, compared to the findings shown in Chapter 3 of this report, though the broad perception of higher compliance levels in northern Europe and lower levels in the South is an accurate one.

Three possible causes for the regional differences were mentioned:

- in countries where there has been an intensive promotion campaign by government or utilities, more retailers apply the Energy Label because consumers start demanding information;
- in countries where large retail chains are dominant it is easier to distribute information and to persuade retailers to apply Energy Labels. In countries where there are large numbers of independent shopkeepers this is a much more difficult task;
- in some countries the Energy Label has been obligatory from 1995, while in others this is not yet the case, or has only recently become so;

And a number of barriers to more widespread application of the Energy Label were identified in the interviews:

- the conservatism of the retailer. Many believe that their commercial interests are better served by displaying the machine unlabelled;
- the commercial nature of the relationship between manufacturer and retailer. The manufacturer can try to convince the retailer to act differently, but must avoid any suggestion of coercion;
- the fact that some manufacturers have been keener than others to promote energy issues. Manufacturers who produce a lot of A- and B-rated machines are clearly particularly keen to see energy use emphasised.

In the interviews most manufacturers claim that on all three counts progress is being made:

- more and more manufacturers see that their efforts in convincing retailers are being rewarded and supported by back-up from third parties;
- more and more retailers, especially in northern Europe, now believe that applying the Energy Label is in their best (commercial) interest, as consumers are interested in the energy use of different appliances;
- all manufacturers interviewed were positive about the Energy Label.

Promotion of the Energy Label to retailers

As well as sending out brochures to retailers directly or through trade associations, manufacturers report that they devote a portion of their promotion effort to telling retailers about the meaning and significance of the Energy Label, particularly during the introduction of a new product range.

Promotion of the energy labelling scheme to retailers and to consumers mainly reflects commercial considerations: promotions are linked to the introduction of energy-efficient products (energy class A or B). According to manufacturers, the Energy Label has brought about a partial reallocation of promotion budgets from things such as product features and general environmental issues, to Energy Label related promotions.

The promotion effort can be divided into:

- direct promotion (sales promoters and other marketing people visiting retailers);
- in-house product presentations and training, usually at the national distribution centre;
- trade fairs, product catalogues, folders;
- help desks (allowing retailers to make telephone enquiries about the subject);
- print advertising (mentioning the Energy Label classification, etc).

Manufacturers report that the variable rate of labelling of products in showrooms is a major cause of concern to them. They argue that, having invested in improving the efficiency of their appliances, manufacturers want this product feature to be drawn to the attention of consumers. In the absence of Energy Labels, this is unlikely to happen.

In Germany, for example, manufacturers have carried out two major promotion campaigns of the Energy Label, directed both at consumers and at retailers. Bosch-Siemens reported that the effect of these has been minimal: despite the fact that Germany's 36,000 retailers have been supplied with four to five times as many colour backgrounds as they need for the products on display, Bosch-Siemens was concerned that they are used very infrequently (cf. Chapter 3). It was seen as important by the respondent that the real reasons for the low level of labelling in Germany should be explored before launching a third campaign. Bosch-Siemens suggested that one reason might be the timing of the information, arguing that while the labelling scheme only came into force in Germany on 1 January 1998, information directed at retailers began years before, the latest information campaign taking place in November 1997.

It may be, however, that the distribution routes of the different parts of the Label do not always function optimally. Whirlpool commented that the task of distribution of the base label to retailers had probably been underestimated by legislators. In particular, it is not always clear who is responsible for distributing the colour background in each country.

The perception of manufacturers is that their actions have raised the awareness of retailers on the importance of labelling. However, although general awareness among retailers is now perceived to be high, manufacturers believe that a considerable amount of work still needs to be done to improve detailed knowledge. Five of the seven manufacturers interviewed expressed the view that more training of retailers

is needed, but several added the *caveat* that such training is not solely the task of manufacturers, but also of governments.

Manufacturers believe that retailers' attitude is also strongly influenced by the promotion of the Energy Label by government and utilities (e.g. through TV commercials, advertisements in newspapers, etc). Energy efficiency can then become a real issue in discussions between the retailer and the consumers. If the Energy Label is not promoted in this way, discussions about energy efficiency will be highly dependent on the attitude of the individual retailer. According to manufacturers, promotion by governments and utilities is much greater in northern and middle Europe than in southern Europe. In Spain, for instance, it was perceived that the energy use of an appliance is not an important issue for consumers or retailers, that a larger number of appliances can be found without the Energy Label than with it, that there had been no support whatsoever by government or utilities and that the only real effort to promote the Energy Label is being undertaken by (German) manufacturers.

Among the manufacturers interviewed, four singled out rebate schemes, linked to the Energy Label classification and run by energy utilities, as a highly effective means of raising retailer awareness. One manufacturer suggested that higher awareness of the Energy Label in northern Europe compared with southern Europe is partly explained by such schemes, which have largely been confined to the northern countries.

Another factor mentioned by manufacturers is the implementation of the directives in national legislation. As noted in Chapter 2, this happened much earlier in some countries than in others. Three of the manufacturers interviewed argued that experience in the Netherlands and Scandinavia shows that a desire to comply with the law and/or the fear of being fined are good motivators for retailers to apply the Energy Label. All manufactures strongly advocate a good legal framework for the Energy Label and good control by government on its application in the shops. The use of financial penalties (fines) was considered the best means to ensure speedy implementation of the Energy Label at point of sale.

Summary of views about the relationship with retailer sector

It can be seen that manufacturers generally attribute any failings in the application of Energy Labels to reluctance or lack of knowledge on the part of retailers. Among the manufacturers interviewed there was very little willingness to explore possible improvements on the industry's own side.

Individual manufacturers largely rely on the national trade associations to carry out the distribution and promotion of the colour background. It is not clear whether member organisations established at the outset that associations were adequately staffed and trained for this task. It is also unclear whether proper preparation went into the promotional campaigns. One manufacturer mentioned that in Germany the planned third campaign for the Energy Label by ZVEI was postponed because they felt that they needed to gain an insight into the reasons for the reluctance of the retailers - presumably for the first time. As ZVEI is regarded as being amongst the most well-organised of the industry associations in Europe, it is reasonable to assume that the situation in other countries is no better.

Linked to this, there is probably room for improvement in the information that the industry is distributing to retailers. As the importance of the Energy Label for the industry as a whole is growing, it might be in the interests of all parties to allocate a higher budget to common, neutral information for retailers, linked both to training and to promotional campaigns. One manufacturer reported (and others confirmed) that it is difficult to find a retailer with a full understanding of the information contained on the Energy Label. This may be linked to the fact that manufacturers mainly stress the advantages of the A or B energy efficiency classes, but spend little marketing effort in explaining the wider implications of improved energy efficiency. No manufacturer mentioned the possibility of linking the structure of the retailers' commission to energy efficiency, so it is not known whether this occurs or is planned, though it would provide the retailer with the financial incentive to promote efficient models.

On the whole, however, the promotion and distribution of the Energy Labels is seen by interviewees as a success by most standards: in three years the Energy Label has become familiar amongst the majority of Community retailers and a large proportion of consumers. The manufacturers see this as largely due to the efforts of the industry itself, in some (but not all) instances backed up by domestic implementation legislation. The Energy Label is now seen by most organisations in the appliance market as a positive and meaningful information instrument, rather than simply as a legal necessity.

Views about consumer behaviour

All manufacturers, with the exception of Whirlpool, commented either on the use of the Energy Label by consumers or on more indirect indicators of consumer behaviour, such as trends in sales of the different efficiency classes and in changes in retailers' product ranges. To what extent these latter indicators can be attributed to consumer behaviour is uncertain, as manufacturers and retailers have an important impact, respectively, on what is available for retailers to stock and on what is available for consumers to choose in the shop. The respondent from Candy made the point that in spite of the important role played by consumers, retailers, and governments, manufacturing industry is the driving force behind the introduction of more energy efficient appliances, from a technical as well as from a marketing point of view.

At the positive end of the spectrum, Gram reported that most consumers in Denmark know about and use the Energy Label and that only A-, B- and C-rated cold appliances are sold in the Danish market; models in energy efficiency class B are the clear favourites (80% of Gram's sales of cold appliances are of B rated appliances). Gram also said that consumers often find the A-rated fridge-freezer too small, as the insulation thickness occupies too much internal volume. Gram reported having experienced an increase in sales at the introduction of the Energy Label, which the respondent explained by competitors having been unprepared; within three to four months this advantage in A-, B- and C-rated appliances was eroded. Both Candy and Electrolux reported that A- and B- rated cold appliances were gaining market share. More specifically, Electrolux stated that, on the basis of GfK data for the biggest eight European countries, A- and B-rated appliances had gone up from 10% in 1995 to 15% in 1996 and 22% in the first eight months of 1997. Bosch-Siemens reported that they have been phasing out the less efficient models and introducing more A-rated models. Fagor and Merloni both commented that changes were taking place in the models requested by retailers. Merloni commented that in southern Europe neither retailers nor consumers have historically been concerned with energy consumption, but that when the Energy Label was introduced retailers nevertheless gradually began to change their product ranges and product displays. Merloni also commented that Italian consumers are not very well informed about the Energy Label because there have been no government information campaigns. Fagor gave the most downbeat response in the context of the Spanish market: until recently energy efficiency was not an issue for the consumer and for this reason the Energy Label had no impact on sales. Not many consumers know or understand the Energy Label, nor do most retailers. The reason given by Fagor was that the Energy Label has not been and still is not promoted at all: there have been no national campaigns co-ordinated by the government and/or utilities, although AEG and Bosch-Siemens are now trying to promote the Labels to retailers in Spain. However over the last two years there has been a gradual change: retailers in Spain are now asking for more A-, B- and C-rated cold appliances, and both consumers and retailers are beginning to pay a little more attention to energy efficiency.

Overall, manufacturers report that the introduction of the Energy Label has had no significant influence on the relative total sales of the individual manufacturers, though Merloni stated that, had no action been taken "on the energy issue", sales would most certainly have dropped.

The experience of manufacturers suggests that consumers and retailers in northern and central Europe are more focused on energy consumption (and therefore on the Energy Label) than their counterparts in the south. They see a more significant increase in the share taken by class A, B and C products in northern

and central Europe (Scandinavia, Benelux, Germany, UK), than in southern Europe (including France) where class C and D products are more popular. Despite these differences, manufacturers see a growing interest in energy-efficient appliances. One manufacturer supplied some survey data on the influence or perceived influence of the Energy Label on consumer behaviour which indicates that more than 75% of the respondents expected the Energy Label to have some influence on their future purchasing decisions.

Most of the manufacturers interviewed see a significant role for A- and B-rated appliances in their future product range, though this depends somewhat on the countries they see as their main markets. Candy, for example, is set on making its newly acquired Hoover brand name a flagship, concentrating on A- and B-rated models. Merloni Elettrodomestici also reports that it has recognised the commercial importance of the issue and is preparing to jump forward in terms of energy efficiency. Whirlpool aims for A and B in the north, B and C in France and C in the south of Europe. Fagor aims for class B for the typical fridge-freezer and minimal class C for all refrigerators and freezers.

Manufacturers are less certain whether the details of the Energy Label are fully appreciated by consumers; several expressed the view that a translation of the energy consumption into running costs (Fagor) or into actual savings over about 15 years (Electrolux) might be more effective in persuading the consumer to buy a more efficient appliance than the raw kWh figure used on the current Energy Label. They recognise that the response of retailers will have a big influence in a positive or a negative way on the impact of the Energy Labels on consumers. This, in turn, depends on retailers' knowledge of and attitudes towards energy consumption.

Estimation of costs of the labelling scheme

The labelling scheme has imposed a number of direct and indirect costs on manufacturers. The main direct cost is associated with the logistics of distributing the Energy Labels, and the cost of promoting and supporting them. Indirect costs include extra research and development efforts to improve the efficiency of the appliances produced.

Logistical costs

One manufacturer estimated the costs associated with distributing the Energy Labels at 250 Li (0.12 ecu) per product. With an annual EU production of approximately 16-17 million units (refrigerators and freezers), this figure implies a total direct logistics cost to manufacturing companies of around 2 million ecu per annum; no government subsidies were received to help defray this cost. Additional costs have fallen upon the national trade associations; the associations have found government subsidies whenever possible, but some of the remainder has had to be covered by members. These extra costs are estimated at 1 million ecu Europe-wide.

Promotion costs

It is very difficult to quantify the costs of the promotional efforts related to the Energy Label, as they differ quite significantly from manufacturer to manufacturer. A further complication is that promotional efforts have varied over time.

With the crisis in the white goods industry, overall budgets for marketing and promotion have shown a tendency to go down rather than to go up, and the introduction of the Energy Label has not reversed this trend. Instead of new promotional funds being allocated to supporting the Energy Label, existing funds have been reallocated; a noticeable portion of the budget has gone into the promotion of products with a good Energy Label rating . This has been the main source of funds for promotional activities by individual manufacturers.

Assuming a sector average of around 10% of turnover for marketing activities, the overall marketing budget of the Community cold appliance industry can be estimated at some 300 to 400 million ecu. A large proportion (roughly two-thirds) of this money is spent on advertising and a further part on the central marketing staff of each manufacturing group and sales staff in each European country.

From initial observations in catalogues and trade fairs by Van Holsteijn en Kemna, it has been estimated that the Energy Label accounts for roughly 3% of the personnel effort and perhaps 1% of (print) advertising. In total this would amount to an expenditure of 5 million ecu annually on Energy Label related promotion. None of the companies interviewed could confirm or deny these figures, as they have not allocated their marketing expenditure in a way that allows the costs of promoting the Energy Label to be separated. It should be stressed, therefore, that the estimate given here is intended only to give an indication of the level of funding involved.

Earlier efforts were probably considerably less, as manufacturers were initially unconvinced about the commercial impact of the Energy Label. The interviews, however, confirmed either directly or indirectly that promotional efforts dedicated to the Energy Label are likely to increase in the next few years.

All in all, it is estimated by Van Holsteijn en Kemna that the industry is spending some 8 to 8.5 million ecu annually on distributing and promoting awareness of the Energy Label. However, much of this expenditure is based on commercial considerations, and linked to the promotion of the A-, B- and C-rated appliances. Only distribution costs linked to D-, E-, F- and G-rated models can be properly be considered as a pure 'cost of compliance' with the obligation to label; this might account for around 1 or 2 million ecu.

Impact on research and development budgets and on production

Attempts to quantify the proportion of research and development budgets related to energy efficiency have to be speculative since manufacturers treat research and development as confidential. No specific figures were supplied during or in connection with the interviews. The figures given here are therefore only intended as a rough approximation. A single driving force for a new product or a new version of an existing product is never clearly identifiable. Instead there is always a mixture of considerations.

From the market there are demands on, for example:

- design (colour, shape, detailing of casing, cabinets and controls);
- features (soft drink dispenser, ice maker, special baskets, etc);
- dimensions (e.g. for the smaller household);
- environmental aspects (refrigerant, foaming agent, etc);
- energy consumption (as now quantified in the Energy Label).

From the production process there is a specific focus on, for example:

- rationalisation of the assembly process;
- standardisation of components;
- design for disassembly (product recycling, refrigerant removal, etc);
- optimisation of components for specific production techniques (shorter cycle times, lower investments);
- cost effectiveness and reliability of bought-in components.

New products are always a compromise between all these demands. Nonetheless, Van Holsteijn en Kemna believe that it is not unreasonable to estimate that more than 20% of total research and development effort has been linked to efficiency issues in the recent period. On a total budget of 90 million ecu, this comes down to a spending of close to 20 million ecu annually.
The interviews confirmed that, as a general trend, overall expenditure on research and development did not increase significantly with the introduction of the Energy Label, but a greater proportion of resources were allocated to energy efficiency initiatives. However, the fact that the test procedure enabled a quantitative evaluation of new product designs had a decisive impact. Manufacturers that were not already focused on the issue of energy efficiency (four of the seven companies interviewed) experienced the largest shift in their research and development priorities. For all manufacturers the Energy Label had an

impact on the speed and intensity of energy efficiency improvements. Some manufacturers have invested particularly heavily in energy efficiency as a way of gaining competitive advantage; specific investments include new laboratory equipment, training, experimenting with new components, calibrating cabinet sizes to fit more efficient components and so forth.

Apart from the efforts by the manufacturers, a key role is played by the component suppliers, who have developed a host of new products to enable manufacturers to increase the efficiency of their domestic cold appliances. As a result of the higher priority given to energy efficiency by their clients, some suppliers have seen a remarkable improvement in their fortunes since the introduction of the Energy Label; it is reported that some have had to ration their component deliveries to customers. Others have been confronted with a decline in sales.

There is a high level of interest within the industry in future efficiency standards and classification schemes, as they will play a major role in the development of the next generation of products. Manufacturers are unanimous in proclaiming the importance of timing: the details of future schemes should be communicated to the industry long before they come into force. Research and development funds are allocated some years before the manufactured product is available on the market, so this type of information is vital not only for research and development planning but for the survival of individual companies as well.

According to the manufacturers interviewed, the introduction of the Energy Label had no perceptible influence on production volume and/or employment within their own companies. It seems likely, however, that the introduction of the Energy Label will have had an influence on production and employment in the supplier industry, particularly suppliers of insulation materials and compressors. Most cold appliance manufacturers had to adjust some product features or dimensions to improve the efficiency of their models. In most cases some new tooling was also needed, but the extra investments for these basically assembled products were limited, as the timing of these investments was in line with the normal cycle of product renewal.

Energy efficiency is now a key issue in research and development programmes of cold appliance manufacturers, whereas before the introduction the Energy Label only three out of seven manufacturers gave it a high priority. It has been estimated that annual research and development spending on energy efficiency in the Community cold appliance industry is now running at around 20 million ecu: manufacturers report that although overall research and development budgets have not increased, the proportion allocated to energy efficiency has. The most important impact of the Energy Label has been on component suppliers, and this is the sector that has contributed most to increasing efficiency.

Energy class declaration and energy consumption tests

Manufacturers put forward several possible explanations for the differences between test results from consumer associations' laboratories and manufacturers' declarations:

- differences in laboratory procedures;
- production variability;
- erroneous declarations on machines that were not formally tested;
- false declarations for commercial reasons, especially when measured values were close to energy class limits.

The manufacturers interviewed argued that differences in laboratory procedures and production variability are the main cause for the deviations in findings. In particular, they suggested that the tests carried out by consumer research laboratories do not always measure appliances installed according to the instructions provided by the manufacturer in the manual. It was also claimed that a number of specific test procedures are carried out in non-standard ways by the consumer research laboratories. However, most of the

detailed points made by the manufacturers were specifically rejected by the main consumer testing laboratories when these were put to them (discussed in Chapters 3 and 7).

Production tolerances may create differences between individual models from the same range. For example, tolerances on foam insulation due to differences in density might be about 4%. Production tolerances on compressor coefficients of performance are up to 7% (guaranteed by suppliers). Production tolerances on thermostats are 5-7% (guaranteed by suppliers).

A further important cause for the deviations is thought to be erroneous declarations on machines that were not properly tested, especially in the early stages of the energy labelling scheme. At the time of implementation, manufacturers were faced with the task of testing a large number, in some cases hundreds, of appliances. In order to reduce lead times and costs not all models were tested. Sometimes the energy classification was based on that of an apparently similar model (in terms of size, features, etc), and this procedure may not always have given accurate figures. By comparison, manufacturers feel that only a minor part of the deviations can be explained by reference to over-optimistic declarations in cases where an appliance was on the margins of two energy classes in laboratory testing.

Clearly, manufacturers are not happy with publications by consumer associations which suggest wide deviations between declared and real values for energy efficiency. Some manufacturers (particularly those that have been accused of wrong declarations) see this as a major problem, as it is potentially very harmful to the image of the industry and the individual firm.

In October 1997, a self-policing system came into force amongst manufacturers. This system, which is run under the auspices of CECED, allows any manufacturer or supplier that is a signatory to the agreement to challenge an Energy Label issued by another supplier. If the challenge cannot be resolved directly, the appliance in question will be tested in a company laboratory or, if agreement on this cannot be reached, in an independent laboratory. Costs are recovered from the party proved to be wrong. Details are given in Appendix 5.4. At the time of writing, few challenges had been made through this system. Bosch-Siemens reported having used the procedure three times: in two cases the competitor withdrew the product and in one case Bosch-Siemens' measurements were wrong. However, the manufacturers interviewed believe that false claims are already becoming more rare as a result of the scheme, and argue that companies will be keen to challenge misleading claims by competitors. It appears that in Denmark, the suppliers are already operating a dispute resolution mechanism, similar to the CECED agreement, through the Danish trade association (FEHA). Gram had no knowledge of intentional mis-declaration and considered that because suppliers check each others' declared values, it is practically impossible for a supplier to mis-declare without it being noticed. Candy also stated that, given that the Energy Label is now playing an important role in the competition between manufacturers, mis-declaration is not an issue, since competitors would draw attention to optimistic claims. The respondent from Fagor stated that Spanish manufacturers have their products tested by an official external laboratory (ENOR) and have no influence on the outcome of these tests.

The industry reports that it has asked the European Commission to organise a round table discussion with the European consumer associations to discuss differences in test procedures. As explained in Section 3.3.4, the Commission has already instituted these discussions under the leadership of TNO from the Netherlands. The industry feels confident that such meetings could resolve the differences and reference was made to similar discussions with the French test institutes after which, according to interviewees, hardly any deviations are now found in French tests. However, it should be noted that the one of the main French consumer groups, Union Federal des Consommateurs, reports having no knowledge of such a discussions and continues to find, and publish, significant differences between manufacturers' declared figures and its own test results (Chapter 3). The industry also states that it has tried to talk to consumer associations directly in the past, but without success.

Other suggestions made by the manufacturers include a more stringent test standard and more closely specified test procedures. If this is still not enough to prevent different declarations, the next step could be the certification of the laboratories by an independent third party. Certification is not favoured by all manufacturers, some of whom feel that the inevitable red tape of such a measure would be excessive.

discussion

Manufacturers are supportive of the Energy Label as a policy tool and as a source of consumer information. They admit that their attitudes have become more positive over time. The need for advance warning of new legislation was stressed and the manufacturers interviewed confirmed that they had developed more efficient models in response to policy. The relative effects of the Framework Directive, the Implementing Directive and the minimum standards coming into force in September 1999 are not clear.

Most Labels are assembled by the retailer, the data strip being supplied with the appliance and the colour background being distributed separately and in bulk. The cost to manufacturers of providing and distributing the Labels is estimated to be about 3m ecu pa. The process of distributing the Labels is still thought to need improvement and some manufacturers expressed uncertainty about the legal responsibilities of different parts of the supply and dealer chain. This uncertainty is reflected by enforcement agencies, for instance Trading Standards Officers in the UK .

Total expenditure on promoting energy efficient products is estimated to be about 8.5m ecu pa, out of a promotions budget of about 3-400m ecu (3% or less). Manufacturers have not felt it appropriate or necessary to initiate major advertising campaigns in support of the Energy Label and there has been limited additional support for the promotion of more efficient models. Nevertheless, they claim that the manufacturing companies and their trade associations are playing a leading role in co-ordinating publicity for the labelling scheme; the effort most often quoted was the series of campaigns run by ZVEI in Germany. The promotional benefits that come from rebate schemes operated by the utilities and governments were particularly praised by manufacturers.

Similarly, the new emphasis on energy efficient products has been achieved within the same overall research and development budgets, which have been reallocated, rather than enlarged. Manufacturers claim that there has been no overall effect on the market share of different appliance manufacturers, but that there has been a shift in the fortunes of the component manufacturers: only those that are producing more efficient components are thriving.

Manufacturers are concerned about unlabelled products, though they considerably over-estimate the proportion of appliances fully labelled in retail outlets. They also believe that retail outlets should be fined for failing to fully label appliances.

Whirlpool is concerned about inaccurate labelling of appliances by their competitors, while Bosch-Siemens have challenged three products through CECED's adjudication scheme. Neither manufacturers nor independent test houses will accept blame for uncertainty about the accuracy of the Label: each considers the other to be creating the discrepancies. This emphasises the need for the Commission and Member State governments to take a lead in resolving this long-standing controversy. It is accepted that early errors resulted from the need to label a lot of models at the same time and the industry believes that the level of discrepancies is dropping. In general, manufacturers believe that the level of inaccurate Labels is minimal and not a major cause for concern. However, manufacturers support the need for more stringent test standards and independent certification if the problem of disputed Labels is not resolved.

CHAPTER 6: RESPONSE OF RETAILERS

This Chapter examines the response of retailers to the energy labelling scheme, and the impact they believe the scheme has had, and will have in future, on their business. It reviews the way the labelling scheme is working in practice from the retailers' points of view, the extent to which retailers' approaches to the cold appliance market have been modified by the labelling scheme and ways in which they may be further modified in future (especially in the light of beliefs about consumer interest in energy efficiency). It considers any measures (whether related to government, manufacturer, consumer or retailer) which might improve the labelling scheme and help to change overall purchasing behaviour in favour of more efficient classes of appliances. The focus is on the beliefs, attitudes and strategies of retailers.

Methods

The main part of the research consisted of a series of in-depth interviews with retailers across Europe, carried out by the Oxford Institute of Retail Management (OXIRM) and the Institute CERDA. The size and diversity of the European appliance retailing market make it almost impossible to construct a statistically-representative sample of companies or managers in the industry; to do so would entail a very large scale piece of research. Instead, the research has tried to identify key attitudes and strategies among two groups: on the one hand, those retailers which, by virtue of their size, lead or substantially influence changes in the appliance market; on the other, typical small retailers, represented by buying groups and other representative organisations. The research has covered different groups of countries, with different consumer habits, different retail systems and different levels of compliance. It has covered large retailers (which have significant influence on some national markets), buying groups (representing large numbers of the multitude of smaller retailers), some independent retailers and mail-order retailers, which have a different relationship with the consumer, especially those with multi-national operations. Within the organisations, senior managers (or owners) responsible for marketing, buying and operations were interviewed. Interviews covered firms in Finland, France, Germany, Italy, Portugal, Spain, Sweden and the UK. Appendix 6.1 gives the interview schedule.

Background

Time

Some of the differences relate to the date, methods, communication and enforcement of the scheme in different countries (Chapters 1, 2 and 3). In Italy, where Directive 94/2/EC has not yet been implemented and few appliances are labelled, retailers reported very little interest in the scheme. In Germany, by contrast, consumer interest in the energy use of appliances has been stronger for some time, and the retailers who were interviewed expected the labelling scheme to reinforce that interest. In Finland, one respondent reported that "... when we started the Label, there was no interest in it. Now customers are interested and asking all the time."

Influence of other agencies

The amount of trade press comment has been different in each country, as have the activities of institutions set up to promote energy efficiency. Each country has its own institutions and programmes, and retailers tend to refer to these in order to explain their own knowledge of the issues and perceptions of the level of consumer interest. Outside Germany, the Netherlands, and to a lesser extent Finland and Sweden, such institutions were not, however, perceived as being very influential.

Consumer markets

The consumer markets served by retailers vary by country or region. Some of the differences reflect the 'positioning' of the retailer (see below) but some reflect general consumer trends and interests - or at least those trends as perceived by retailers. Retailers respond to, attempt to capitalise on and try to influence consumer interests and values. Consumer confidence and willingness to spend has varied from country to country, and this has affected the development of cold appliance retailing. The level of consumer interest in environmental and energy issues also varies (Chapter 4). Such variations clearly influence what retailers can do and can attempt to do. Some retailers, of course, run extensive and sophisticated consumer research operations and the introduction of Electronic Point of Sale Systems (EPOS) has given retailers access to greater information on buying patterns: what is bought, where and when. Many retail companies are now very well informed about consumer interests and behaviour.

Retail structures

Retail structures - the patterns of organisation and methods of trading - vary by region and country. Retail structures have an important influence both on the implementation of the labelling scheme and retailer attitudes towards it. In particular, the degree of centralised control has a significant influence on a retail firm's sales, marketing, training and operations methods and policies, as well as on the way in which compliance with the scheme is monitored. All centralised companies have, to a greater or lesser degree, a headquarters which communicates information about the energy labelling scheme, encourages or supplies training information to store staff, controls systems for checking compliance and centrally-controls the stocking, delivery, and re-ordering both of appliances and Labels. In decentralised retailers, where each store (or group of stores) is responsible for these matters, there is a greater likelihood of variation from store to store. Although it might be expected that both centralised and decentralised firms would systematically manage the implementation of the labelling scheme and compliance with it, in practice it is the centralised organisations which have management systems that can most easily be extended to deal with the energy labelling scheme.

Groups which, at first sight, appear to be large retailers with a large market share may actually have a rather low degree of centralised control. Where franchises or retailer co-operatives are common, as in France and the Nordic countries, stores own or control the central buying and other functions, rather than the other way round. Buying groups may display common fascias and present a more-or-less uniform offer to the consumer, but are composed of individually-owned shops or groups of shops. The groups vary in the degree of co-operation and harmonisation of practices; although there is something of a general trend towards the integration of such groups, many retailers within them remain quite independently operated.

The changes that are taking place in retail structures are themselves significant. There are general trends across Europe towards concentration (the growth of much larger retail companies), internationalisation (more cross-border operations), scale (retailing in larger outlets) and integration (the management or co-ordination of the supply chain from the retail end). These trends both provide for, and further encourage, consumers' desires for convenience in retailing - for the provision of wide ranges of goods at low prices. The scale trend is particularly important in electrical retailing. Retailers of increasing scale have embarked on strategies of building hypermarkets or large specialist stores which achieve ranges and prices of goods that small organisations or small-store retailers cannot. Department stores and small shops have lost market share to large electrical specialists, and continue to lose it. Many department stores no longer sell any large white goods at all. Very many small shops have closed. It is argued by some retailers that the trend encourages consumer demand for mid- to low-price appliances.

Severe competition from large-scale retailers is forcing small retailers to join forces in buying groups, distribution chains or franchises, especially in southern Europe. Their focus on price competition tends to overshadow any interest in other qualities that appliances might have.

Retail strategy

Retailers' marketing strategies affect their attitudes to the energy efficiency ratings of products and may affect their implementation of, and compliance with, the labelling scheme. Important aspects are:

- Whether or not, and the degree to which, they develop and sell 'own-label' appliances. In the cold appliance market, own-label products are mainly intended to compete with branded models on price. Retailers focusing on price and price-driven consumers are less likely to be interested in the energy efficiency of products. Retailers also apparently find it more difficult to source products which have low price points for their particular places in the range, yet have high energy ratings. Own-label products have developed more quickly in UK retailing than in other countries. In Spain and Portugal, for instance, own-brand cold appliances are not at all significant today, but may well become significant in the future.

- Market positioning. The positioning of the retail outlet in the market or in customers' perception will be a significant factor. Especially important is the question of whether or not the company focuses on low-price products and promotions in general (whether own brand or not). Other positioning strategies may focus on service, or on establishing 'authority' in the range of goods or the technical expertise offered. The big firms in France developed their own label schemes some time ago, partly to help them to distinguish themselves from smaller, less 'authoritative' but more service-oriented firms. Hypermarkets and large firms, which compete with small firms on price and range, rather than personal service and local loyalty, have provided comprehensive information to go with large ranges, as an alternative competitive weapon. In this case, though, the focus has been on comprehensiveness and range of information, as much as on energy efficiency itself.

- Ranging policies. The range of goods offered is related to the overall question of positioning. Important points are whether the store stocks or supplies a very large variety of models, and whether or not it sells mainly domestically-manufactured goods. Some retailers report being unable to fill every place in a range with higher energy efficiency models. The output of domestic manufacture varies in its pattern of energy efficiency.

Size of retailer

Independent or small retailers (those with a single outlet and with less than 10 outlets respectively) gave rather different views of the labelling scheme. Dislike of bureaucracy, the burden of the work required to ensure compliance, and lack of systems (whether IT or manually based) for managing information or organising operations such as labelling were more important factors than they were among larger firms. It was among small firms, rather than large ones, that the research identified individual managers or owners who claimed to know nothing about the scheme at all, who stated that the requirements of the scheme did not apply to them or that their (obviously incomplete) application of the Labels properly discharged their obligations under the scheme.

Country differences

Different countries have different retail structures, in electricals as in other kinds of retailing. Statistics on retail structures and retail sales across Europe are somewhat unsatisfactory, in that measures are rarely comparable from one country to another. One useful indicator of the variation in retail structures across Europe is the number of outlets (stores) per 10,000 inhabitants (Table 6.1); this provides a proxy measure of scale and concentration in retailing methods. High densities of stores tend to be associated with more 'traditional' retailing through small stores, by independents or small businesses. Lower densities indicate a trend to modernisation, large stores and corporate structures. The Nordic countries are something of an exception to this: there are low densities of stores, but average store sizes are less than might be expected and the groups tend to be co-operatives of various kinds, rather than corporations. Benelux also shows a

high concentration into corporate retailing, but store numbers are high, as the building of large stores has been restricted.

Table 6.1 Store densities across Europe (outlets per 10,000 population)

Portugal	192
Greece	184
Italy	171
Belgium	141
Spain	134
Luxembourg	116
Denmark	100
France	97
Sweden	94
Norway	92
Ireland	90
(W) Germany	85
UK	81
Netherlands	80
Finland	77

Source: Eurostat 1993

The Nordic region is dominated by a few large general retailers, in co-operative structures of various kinds, often with small store formats. The UK has a large market, dominated by large stores and multiples of different formats, but no significant buying groups. The Irish market is small and lacks electrical groups of any size. Austria is similarly small but distinct, but has buying groups allied to those elsewhere. German retailing is dominated by large groups (often buying groups), but the traditionally strong department store sector is losing ground to specialists; mail order remains particularly important for white goods. France is another large retail market with buying groups of importance, specialist multiples and a more important hypermarket sector than elsewhere. Southern Europe has a more fragmented, less developed retail structure, with many small stores and small retailers, particularly in Italy (where in addition Directive 92/75/EEC has only just been implemented). Spain and Portugal have a growing hypermarket sector. A detailed, country-by-country description of the different national markets is given in Appendix 6.2.

Cold appliance retailing overall

To understand the impact of the labelling scheme, it is necessary to place it in the context of retailers' views of overall changes in appliance retailing. Country trends vary - primarily according to ups and downs in consumer economies. An upswing in Finland, for instance, has brought a recent surge in purchases. Returning consumer confidence has encouraged replacement of white goods but, according to retailers, has been accompanied by a greater interest in the quality of appliances ('quality', in this context, being widely interpreted to include durability, noise, energy efficiency, functions, size and style). Retailers suggest that consumers are now willing to pay more for better products, and that this is encouraging stores to change their ranges. In the UK some retailers note a willingness among some consumers (discussed further below) to pay more for appliances they believe to be better made, more reliable, and more energy efficient - these three qualities going together. The combination of national economic improvements, a lower base of household ownership and changing lifestyles mean that Spanish and Portuguese retailers see more of a growth market than those elsewhere; sales of fridge-freezers and conventional upright freezers in particular are growing.

However, retailers who serve price-driven customers in any country, and retailers in countries where the growth in consumer spending power and confidence are less marked, are less likely to identify these trends. Smaller retailers in both France and the Nordic countries show less interest in the labelling scheme.

All retailers regard the refrigeration market as less interesting, less dynamic and offering fewer growth opportunities than brown goods (TVs, videos, audio systems) or even other white goods (e.g. washing machines). The market is mainly driven by household start-up and by replacement purchases.

> Nowadays there is not much technical difference between the machines…the difference between brands and models lies in design [styling] (Manager, small specialist chain, Spain).

However, among groups and in countries where ownership of cold appliances has been at higher levels for longer periods, retailers note growing sophistication among consumers: as people buy second or subsequent replacement appliances, they become more interested in reliability and other quality issues. Repair costs have increased greatly and awareness of such costs has increased, not just because the actual costs of replacing moving parts may be high, but because the prices of white goods are relatively stable and comparable from one product to another. Growing dissatisfaction with the inconvenience caused by breakdowns and the need to arrange repairs were also mentioned as factors that are changing consumer values.

In contrast to other markets, the refrigeration market does not show dramatic changes year-on-year. The interest in frost-free products, larger appliances, coloured appliances, appliances with separate temperature zones for dairy produce, soft drink sections etc. is not seen to produce large movements in the market.

In summary this is not a market which retailers expect to lead their growth, to be specially important to them, or to repay major efforts in merchandising, marketing, or promotion.

Impact of and Attitudes to the Scheme

Individual respondents varied in their beliefs about how much effect the labelling scheme has had on purchasing patterns and retailers' business. The variation was, however, around a low mark: "little effect"; "none"; "none at all"; "gradually having some effect as the information is given to customers". Even when energy efficiency was seen as an issue of growing significance, this was not necessarily related to the labelling scheme: "... the information about energy efficiency has had an impact of course, but this is nothing to do with the European scheme. Energy was a big concern during the 1970s and 1980s with a lot of government publicity asking for energy saving. This is not new in France and is still important. But this is definitely nothing new … The EU labelling scheme did not much change things," (quality and consumer affairs manager, hypermarket chain, France). "Our own energy labels certainly had an impact as people are now more aware of the energy consumption. But it is not due to the European labelling itself" (France, large group, buying manager).

At present, retail competition in white goods is based on:

- price;
- extent of range;
- after sales service / delivery / repairs;
- in store service / technical knowledge of staff;
- store location, convenience and availability of car parking.

There is widespread expectation that consumer interest in energy use will rise considerably in future, though few respondents suggested that this was imminent. Time scales of five or ten years (before energy efficiency becomes a very important matter) were mentioned by respondents, though those in Germany and to a lesser extent Finland anticipated quicker changes. It seems that few retailers expect to change their policies or operations rapidly or significantly from those of today. Some mentioned forthcoming changes in regulations on minimum energy standards, but saw this largely as a matter for manufacturers, not requiring much action on their part. The interviews suggest that little information is being collected by retailers on changes in consumer's interest in energy use, or about changes in actual sales patterns; this contrasts with other areas - price sensitivity for instance - which are closely researched.

There are exceptions, however, and these may prove important. The attitudes and policies of market leaders can influence both consumer expectations and the standards required of other retailers if they are to remain competitive. Although none of the retailers interviewed envisaged a retail strategy based on energy/ environmental issues, there is an expectation that manufacturers will have to produce higher rated appliances, that some will begin to compete on the basis of energy efficiency, and therefore that retail staff will have to be better informed. For example in France, a buying manager for a large specialist electrical group reported that, while there are problems with the scheme, "...energy labelling is important and manufacturers seem to pay more attention to it… When you see that our first [lowest] price in table top appliances… already has a B grade, competition in energy consumption is bound to become more fierce".

Responding to the market

The factor which overwhelmingly dominates retailers' attitudes to the labelling scheme is their perception of consumer interest in energy efficiency. Retailers are only interested to the extent they see that consumers are interested. While retailers react to changing customer interests, they often describe themselves as being unable, unwilling or unjustified in leading them. As one UK retailer commented: "Our responsibility is to bring products into the company which will sell, not which will help the environment - unfortunately... Retailers are basically conservative." A major Swedish company president told us that: "The trend can change dramatically; these things can happen in just a few weeks. Our managers are very realistic. As long as the customers don't ask for something they don't do it. But if there is a change, as there was when people began to talk about bleach in paper ... the issue became important and we started to investigate the matter with our suppliers, to give information to our customers and so on." His point, one encountered frequently outside Germany, was that most customers are not greatly interested in the energy efficiency of refrigerators.

"Consumer concerns are still more linked with the capacity, the performance and the price of the product than with energy concerns. Energy consumption is one consumer concern, but only one among many," (buying manager, large specialist chain, France). In Finland, "our main advertising message today is durability, not energy. Energy is more a tactical point, not the main point" (marketing manager, diversified group, Finland). "The consumer is more interested in price or volume capacity than energy consumption. When we explain what the Energy Label is to a potential customer, we have to do it very carefully. We do not want to make the customer dizzy with so many things he is not interested in… only four or five people in 1,000 ask for the EU Energy Label when they come to our stores to buy a refrigerator," (department store sales manager, Spain). "The general public do not even know what energy efficiency means," (legal department manager, mail order and hypermarket company, Portugal). "Customers are not really interested," (electrical specialist buying manager, UK). "There is not the same interest among consumers here [Italy] as in France or Germany. Some of our customers are interested in the level [quality] of the product and our sellers can try to get them to take an A or B… but price is more important for us; the small retailers might be more interested," (marketing and merchandising manager, department and hypermarket group, Italy).

It is difficult to distinguish between the effects of time and of national consumer differences on retailers' attitudes, and the factors are probably inter-related. Retailers are 'learning' about the scheme; some report

that their attitudes are changing as it becomes established, in line with changes in general public attitudes and customer attitudes. Large retailers in the Nordic countries report growing consumer interest. In Finland, where retailer interest in the scheme seems higher than in some other parts of Europe, respondents reported a gradual learning process for all parties since the Label was introduced. In France, large retailers recognise some interest, related to national campaigns in the past and retailers' own energy labelling. There is a strong contrast between the Nordic countries and Italy, for example, where retailer interest appears very low. Retailers' perception is that the general level of consumer interest in energy efficiency has long been higher in Finland than Italy.

Beside the perceived lack of concern about energy efficiency in general, a specific lack of interest in the labelling scheme was cited. If customers have no information about the scheme, they will not be looking for it and retailers will not use it in selling or marketing. "The customer does not know the Energy Label. There is not enough information spread about the matter, and at the moment people are not interested in it," (department stores sales and promotion manager, Spain). However, in general retailers report the belief that it is not, and should not be, their responsibility to promote energy efficiency or the labelling schemes. If government or other agencies do promote them, retailers will respond to the interest created. In Germany and in the Netherlands, for instance, retailers talk of the interest created by the activities of other agencies; this leads to their own use of information about energy efficiency as a selling technique. Lack of information about the scheme compounds lack of consumer pressure; together, they explain retailers' - especially small retailers' - lack of interest. "Cold appliances come from manufacturers with the Energy Label attached. That is not my business," (small chain general manager, Spain). Retailers do, however, recognise a need for compliance with the scheme, in order to encourage consumer interest. "It makes my blood boil to see [some retailers] barely pay lip service… it loses its validity... if others are casual then customers will be casual and think it doesn't matter," (department store buying manager, UK).

Attitudes were strikingly different in Germany from those in other countries. German retailers, for example, are very concerned to display labels about CFCs, because - they say - there is high customer interest in and press comment on this issue. In France, by contrast: "even the government TV campaign about CFCs … hardly had any impact on consumers' behaviour,". The retailer who expressed this opinion is not, therefore, greatly interested in promoting the environmental or energy aspects of appliances. In Germany, however, the retail respondents were quite clear that in the mass market, concern for energy efficiency is high among customers, and that retailers must take it into account. "Our customers arrive in the store pre-informed… He has read the test magazines…yes really!…It is really important, water needs, energy efficiency. It is something about Germany: even for our same company, France is very different." One perceived reason is the strategy of certain German manufacturers over the last decade of image and brand building based on 'eco-leadership'. "This is the reason German consumers look for quiet dishwashers, smallest water needs and so on."

Local schemes to encourage energy saving - such as the NordRhine Westphalia scheme of rebates for purchases of A category appliances - are also regarded by the retailers as very important. The retailers' view was that the main focus of consumer interest today is not so much on ecology as on saving money, and on combining ecological concern with money saving. It is becoming possible and worthwhile to promote energy efficient appliances. "We put out an advertising flier in the Munich area with only very good or A label products. That was very successful. It was a pilot for us as we usually only promote on low prices," (business development manager, large specialist chain). This respondent added that his company had tried to do something similar in France, but had abandoned it: "... our leaflets started to mention [energy efficiency] but don't any longer as it is difficult to use this argument with customers there."

In Germany the EU label scheme has only recently been officially implemented (Chapter 1) and retailers here, as elsewhere, do not expect the scheme to be rigorously enforced or checked by the authorities.

"But consumers have been quite conscious about energy labels, and the press has been talking about it for some time," (buying manager). The mail order firms are regarded as having been the pacemakers in interest in energy efficiency. "They have no sales people so they must publish as much information as possible in the catalogue. So we have learned from the catalogue companies how to put decent information into our leaflets."

Incentives/training

Of course, matters are not as straightforward as 'customer demand - retailer response'. As interest in energy efficiency develops (however it starts), training and other initiatives are needed to translate that interest into changed purchasing behaviour: "Electrical retailing is all about momentum. It's about store staff getting behind something, so when they talk to customers, they have that something at the front of their minds. Staff training definitely has a role to play… but it needs to be timed right, when there is some customer demand appearing, so that all the things they have learned to say, they get the opportunity to say, and it starts to be part of the standard pattern. There has to be some customer demand to get that up and running as part of what they do," (UK retailer).

Shifting the patterns of behaviour of sales staff does require some effort. Staff training "needs to be backed at least initially by some form of staff incentive, because that is the nature of sales people,". But there are problems with sales incentive schemes. In general, it is difficult to design a scheme that does not give rise to unwanted or unexpected distortions of behaviour, or that does not 'drift' over time to become less effective, perhaps through deliberate manipulation. Incentives which depend on beating targets are susceptible to abuse via the manipulation of the targets. "The key for us is that any staff incentive must be very, very simple ... it is difficult [to use] thresholds, to administer start points and cut-off points. We have to work out what we should sell, and what our targets are with the incentives, take the money and spread it on every product… with reasonable amounts of money... so a C larder fridge gets £2 but a low energy appliance, where you do sacrifice space, gets £20 or £30, which is a significant incentive."

Attitudes to incentives offered by 'third parties', for example national bodies, vary by retailer and according to the nature of the incentive offered. Some general points emerged, however:

- schemes which give customers rebates (or other incentives) for purchases of particular types of appliance only in particular stores are not, of course, welcomed by other retailers. Dislike of such a scheme can carry over into suspicion of energy labelling itself;

- there are concerns about incentives which last only a short time, or which are seen to 'distort' the market. Short-lived or localised schemes make planning difficult for retailers, as range-planning decisions have long term effects. It can take many months to take a model out of a range (because of stock turnover) and long periods to add a model because of distribution and space-allocation requirements;

- there are also concerns about incentive schemes that reward incremental sales, i.e. that require a forecast or budget to be set and then provide rewards for exceeding the forecast. Such forecasts can be manipulated;

- for national or wide-spread companies, ranging and distribution are critical. If a low energy product (or an incentive) is available only in some of its stores, it is not likely to be promoted. "You can't advertise a product unless it is in most stores ... you cannot do much about a staff incentive because you irritate the staff [in branches] where they do not have that product," (large specialist company buying manager, UK).

Problems with the Scheme

The research suggests that there are three broad categories of practical difficulties with the Label - from the retailers' point of view - which help to explain levels of non-compliance (Chapter 3):

- information shortages;
- logistical problems;
- other practical problems.

Information

Not all retailers are well informed about the labelling scheme, especially in countries where the scheme has only recently been introduced. Some small business owners in particular claim to know little or nothing about the scheme, to be unaware of its requirements, or to believe the scheme does not apply to them. The two main sources of information for the independent sector have been the trade press and the manufacturers. The situation varies by country, particularly according to how active the trade press has been. Even where there has been comment, however, it has not always been helpful: "it was shrill…complaining this was another burden on us….not very helpful" (UK retailer). Manufacturers have been the major source of information, especially via sales representatives and manufacturers' associations. Often, however, retailers large and small say that they have had 'little' or 'no' information: "we have had no information, except from the suppliers, especially the leading suppliers," (large chain marketing manager, Italy). "Selling staff have had very little information, so they do not talk about it to consumers," (buying group distribution manager, Finland). Although manufacturers have been the main source of information, however, they have not always appeared to be keen supporters of the scheme: "manufacturers were reluctant brides, they saw it as another unwelcome chore. They had not invested much in it, so no-one knew much about it... it started off very badly and no-one seemed ready," (department store buying manager, UK). In larger companies, the same sources of information are recognised, but government circulars or consultation exercises by various energy efficiency institutions were mentioned to us by some. Companies like El Corte Ingles in Spain, or the John Lewis Partnership in the UK or Darty in France may have been targeted either for their expertise, or for their size. Such companies have the systems and resources to spread and use information internally. With the exception of the Netherlands, the mass of smaller companies appear not to have been targeted with information, or not targeted effectively. Concerned individuals or companies have sought information; others have not.

There is also a significant variation in the handling of information within retail organisations: companies with better communication, briefing and training have passed the information on to staff more effectively than in other places. Both centralised and de-centralised companies are likely to have transmitted information to stores alongside other sorts of information, but the two kinds of organisation vary in how much control and checking of labelling procedures goes on (see below) and in how the logistics of label provision are organised. Again, in all kinds of stores, but particularly the decentralised organisations, manufacturers' merchandisers and sales representatives are the prime source of information about the energy efficiency of any particular appliance and about the meaning of the Label.

Lack of knowledge can also be attributed to a failure to reinforce information exercises about the labelling scheme. Often, it seems that an initial exercise has been undertaken within companies, but with little follow up; this seems to reflect the lack of priority the matter is given by retailers (though in some countries, of course, not much time has elapsed since this first exercise).

Retailers generally appear to lack information about, or interest in, official enforcement of the scheme, and nowhere was there found any expectation of rigorous enforcement by the authorities. Some respondents, especially independent retailers, did not know of any enforcement mechanisms or of any penalties; some positively claimed that no such systems existed. Even in firms where strict compliance was an item of

company policy and there were internal compliance systems, it tended to be assumed that there would be little or no outside enforcement. The expectation was that the authorities were not greatly interested, or would give higher priority to other issues, particularly safety-related ones.

It was observed that some senior retail managers tend to report (and to believe) that their stores are fully compliant when they are not. This does not seem to be a matter of contempt for law and regulation. They are either surprised to find omissions when they are pointed out and then explain the matter in terms of the 'practicalities' (described below), or else they believe that full compliance is difficult or impossible, and tacitly accept that a small level of non-compliance is inevitable. This suggests, once again, that labelling and energy efficiency are not matters to which the highest priority is given in terms of management time.

Logistics

Different retailers manage supply and labelling in different ways. A key dimension is whether there is centralised distribution or direct-to-stores distribution (both of appliances and of stocks of Labels).

The colour background labels are not supplied separately with every machine - retailers hold stocks of these generic labels, or request labels when they need them (Chapter 5). Both stocks and requests may be handled centrally or left to each individual store. "If we open a new outlet, we send the order for background labels to [the manufacturers' association] but only the first time. After that, like existing outlets, they have to send a letter and order for themselves." Manufacturers thus have to deal with different systems, and retailers claim that there is room for error, especially for running out of labels.

Replacement data strips are sometimes required, but the normal supply is one strip per appliance (Chapter 5). Special arrangements therefore have to be made to keep stocks. This can be arranged centrally or store-by-store; if the matter is left to each store, there may be errors and omissions. Arrangements have to be made to re-order from those stocks, or from the manufacturer if the stock is exhausted.

Stores cannot re-print Labels themselves as they must use the official Labels. A forecast and replenishment system therefore needs to be established, separately from goods ordering procedures, and distinct from the system for other point-of-sale labels and display material. This can cause confusion, as other kinds of label and point-of-sale material are often retailer-generated.

When the two parts of the Label are supplied separately, confusion can arise about their source and about where re-orders should be sent. Control and checking are sometimes seen as difficult. "Our whole organisation is centralised... It is difficult to control anything if we don't have a centralised system inside our retailing company. The European labelling scheme forgot these retailing constraints" (large French specialist, buyer).

Where de-centralised organisations have direct-to-store deliveries, there are unlikely to be central mechanisms for checking, enforcing, or encouraging labelling. There is then scope for variation in standards, according to the interests and efficiency of individual store managers and individual store procedures. In a centralised company with good systems, such problems are less likely to arise. Even if they are not very interested in the scheme, they can comply with its requirements. "We talked about this at the last electrical department managers conference…all we got were shrugs, of no, not a problem," (UK department store).

Other practical difficulties

- Labels become damaged or worn. Major models may be on display for up to 3 years. Customers - or children - may damage or remove Labels. Simple wear and tear on Label and glue means they may need replacing.

- In a few cases, it is difficult to find space on the appliance for the Label, though this is less of a problem on cold appliances than on washing machines.

- The Label may be obscured by other labelling: it can be difficult to find a good position to display the Label (or consistent positioning) because of the wish to display other labelling. This is particularly true for retailers who aim to provide consistent, authoritative product information, including much more than energy labelling.

- Staff error: Labels are put on the wrong product; staff forget to put on the Label; staff lose the Label. The two-part Label compounds the problem and can confuse staff. “Sometimes the Label is in the appliance pack, sometimes it is sent separately. This simply cannot work,”.

More generally, the labelling scheme does not always fit well with the standards that some retailers wish to maintain, making retailers reluctant to label appliances. The Labels and glue themselves may not be durable enough to maintain the retailer’s standard of cleanliness and smartness for point of sale material, over long periods. There are attempts in some stores to raise standards of display, and to create interest in what tends to be regarded as merchandise which lacks visual appeal. Currently this is seen especially in ‘island’ displays of brightly coloured appliances. The visual display is marred by intrusive, large, multi-coloured energy labels.

Retailers who maintain significant information systems on the specification of their products and who use this to generate point-of-sale information, can find the Label an unnecessary duplication. Such retailers may also find the Label over-dominant compared with other information which they place on the appliance, and incompatible in style. It is not only large corporations who maintain such information; among small companies there are some who pride themselves on careful labelling and the provision of detailed product information. Where there is a tradition of placing labels (possibly carefully hand written) on every appliance, it can be difficult to accept the need for a different label just for part of that information.

Generally, though, independent retailers are less likely to label appliances. Instead, they will often rely on personal contact and discussions with the customer to make sales. In these cases labels may be seen as positively disadvantageous, as they are thought to discourage customers from discussing products with sales staff.

Some appliances are never placed on display. In the case of the most popular models in the large turnover retailers, the display models are on permanent show while the actual appliances sold are delivered directly to the customer from the retailer’s or supplier’s warehouse. In the case of the less popular models, no example may be put on show; a specific order will be placed for a customer on request. Frequent comments were made about the wastefulness of supplying a Label with every appliance. This can create a view of the scheme as inefficient and therefore not deserving of support.

Improvements

Opinions about the design and communicative power of the actual Label varied, though very few concerns were voiced about the validity or reliability of data on the Label. Approving comments on design were common - the Label was often described as good, colourful etc, though others dissented: “there is really a problem of aesthetics,” (France). There is no clear consensus on these issues.

Frequent comments were made about consumers’ ‘real’ interest being in the relative running costs of appliances, sometimes expressed as the pay-back period for the increased cost of purchasing a more expensive, higher-rated model. Sometimes this was expressed strongly: “it is a shocking piece of design:

no-one understands the Labels... nobody is putting pay-back calculations on the front of the product, so the low energy message has not got across," (UK).

However, on probing, virtually all respondents who discussed how the Label was used in the store reported that they were 'translating' the information on the Label into some kind of cash terms. Marketing departments or environmental managers were providing the information to sales staff about how to do this, or store and sales managers were providing similar information or seeing their staff attempt to do similar calculations, sometimes using data provided by manufacturers' representatives. Approaches vary: one Finnish retailer provided one or two illustrative pay-back period calculations in an internal staff magazine. A large German chain has developed a ready reckoner for average running costs for each energy category for six general types of appliance and large or small capacities in each.

Even in Germany, where retailers tend to assume that consumer interest in energy efficiency is high, "More efficient appliances normally are more expensive, so we need an argument for the customer…we need to talk about the pay-back period," (environment manager, large specialist chain, Germany).

The complexity of the Label information is a concern. "The technical information [on the Label] is too complicated for staff. So we give them the basic idea of the Label… what is the mark, where is it coming from, what can you tell from it. But not the technical background," (marketing manager, diversified group, Finland). There was some concern that, if questioned, staff would not be able to explain properly the meaning of the data on the Label.

When, in addition, sales staff are encouraged (one way or another) to try to take this information and turn it into something else (the financial information) often using approximations and guesses, it is perhaps not surprising that store managers and sales staff use the Label as a sales tool less than they might, because of lack of confidence. "Staff have been given example calculations. They can show people if they ask," (merchandise manager, Finland). Training would of course improve matters, but the two impediments to use (concerns about staff ability to deal with the information, and concern that consumers want different information anyway) deter retailers from considering training schemes.

DISCUSSION

Retailers argue that it is not and should not be their responsibility to promote the Energy Label or energy efficiency. There appears to be little recognition that this is a mandatory scheme backed by legislation in both the Member State and the Commission. Some senior retail managers believe that their stores are fully compliant, when they are not, suggesting that the obligations which the legislation places upon them have not been fully understood. The fact that there is little expectation that the labelling scheme will be rigorously enforced or checked by the authorities may also contribute to complacency and apathy.

Sales of white goods are being concentrated in large outlets and fierce price competition limits the opportunities for other campaigns, so few retailers make energy efficiency a focus of their marketing strategy. Large outlets prefer to promote other electrical ranges, such as brown goods, where there is more technology development and variety. The cold appliance market is seen as fairly static and unchanging. Ironically, the advent of a new focus and marketing opportunity, with the Energy Label, does not appear to have been utilised.

Retailers strongly emphasise cultural variations between national markets: energy efficiency is important, for example, to German shoppers but of no interest to the French. Overall, however, they believe that consumer interest in energy efficiency is low in most European markets, and do not believe the Energy Label has had much impact. Consumer interest in energy use is expected to rise at some future point - up to 10 years time - though it is recognised that some national markets have already begun to change. Because of perceived consumer apathy, retailers are not monitoring consumer views on energy efficiency

or plotting sales trends on this criterion. Although the survey data reported in Chapter 4 supports the belief that the importance of energy use to consumers varies from country to country, it appears that retailers are tending to underestimate the significance that consumers place on energy use, and the influence that the Label is capable of having.

The design of the Label had more supporters than dissenters and there were few concerns from retailers about the validity or reliability of the data. Shop floor staff are reputed to find the Label complex and this reduces their confidence in explaining it to consumers. There is also a perception that consumers want different information anyway (for instance on price) and this further reduced the likelihood of retail staff discussing the Label with consumers. However, the survey evidence reported in Chapter 4 suggests that retailers may underestimate the interest that consumers are already expressing in the energy use of appliances -overall, just under one-fifth of those interviewed had discussed energy or running costs; in about half of all cases the issue was raised by the consumers themselves, in the other half, it had been raised by the shop staff.

Manufacturers have been the main source of information about the Energy Label, but retailers believe the labelling scheme is an unwelcome chore, both for themselves and the manufacturers. Retail managers believe that the distribution system for Labels does not recognise retailing constraints. This dislike of the bureaucracy meant that in some cases the labelling scheme was either ignored or believed not to apply, particularly in the small, independent stores. Significant incentives (30 ecu per machine) would be required if retail staff are to sell energy efficient products in some countries.

Energy efficiency, reliability and quality of engineering and design are often linked, both by consumers and retailers. This is partly a reaction to the problems of repair and maintenance. The survey evidence in Chapter 4 tentatively supports the idea that consumers are attracted to more energy efficient models because they perceive them to be of higher quality, but also suggests that ‘environmental quality’ is part of this perception.

In Portugal, Greece and Italy, there are twice as many retail outlets per 10,000 population as in Finland, the Netherlands and the UK. This effects compliance levels, which are highest in large chains with central administration, and the task faced by national monitoring agencies.

Some retailers express the view that the labelling scheme is wasteful, as only a very small proportion of all appliances are put on show with the Label attached. This argument would have less validity if each appliance bought by consumers contained the full Label. However, the provision of the Label in two parts means that few appliances, when delivered to the home, do so. This limits the opportunities for purchasers to learn, understand and check the information.

CHAPTER 7: CONCLUSIONS

7.1 Implementation of the Directive by Member States

Under Community legislation, Member States are responsible for implementing Directive 94/2/EC in domestic legislation, for ensuring that dealers and suppliers comply with the legislation and for ensuring that the introduction of the Energy Label is accompanied by educational and informational campaigns.

In all Member States, with the exception of Italy, domestic legislation is now in force, though only four Member States (Austria, Denmark, Greece and the UK) implemented the legislation, as required, on 1 January 1995. The most recent country to comply was Germany, where domestic legislation came into force on 1 January 1998. Because some of the more populous countries in the Community implemented late, by the end of 1995 only 55% of the population of the Community lived in a Member State where the labelling scheme was in force.

All Member States which have implemented the legislation in law have assigned responsibility to a Ministry and more than half have also delegated some enforcement authority to an agency.

7.1.1 Monitoring and enforcement action

Governments have a necessary (but not sufficient) role in supporting the Energy Label. Through the timely implementation of the Directive in domestic law, regular monitoring of compliance and taking enforcement action when necessary, governments send a clear signal to dealers and suppliers that the scheme is being taken seriously by the State.

Nine Member States had undertaken some monitoring activity by summer 1997 and an additional three were planning to do so. In five Member States, the compliance of suppliers as well as of dealers had been monitored, but only Denmark, the Netherlands and Sweden reported having carried out laboratory testing of cold appliances. The lack of testing facilities and the cost of testing appliances makes such monitoring difficult and expensive. As appliances are marketed throughout Europe, it would be helpful if Member States which are actively checking the information could share information with others. There is some evidence this is already happening: Ireland relies on an informal European network to identify instances of non-conformity or false declaration of results. An alternative method would be to require manufacturers to deposit the technical information where it can be accessed by the public.

No Member State reported having taken formal legal action (a prosecution) for non-compliance with cold appliances. The only prosecution identified related to mislabelling of a wet appliance in the UK.

7.1.2 Information campaigns

Information campaigns alert consumers to the existence of the Energy Label and confirm that it has official support. Eleven Member States undertook promotional campaigns to support the scheme: Belgium, Denmark, Finland, France, Greece, Ireland, Luxembourg, the Netherlands, Portugal, Sweden and the UK. A wide range of communication tools were reported to have been used, but newspaper and TV advertisement campaigns, and brochures at the point of sale were the most frequently reported. Retailer education programmes were also used by several Member States. Less frequently used tools include leaflets with the quarterly electricity bill and rebate schemes. Some innovative communication tools were reported, such as a wall-newspaper at railway stations in the Netherlands and a children's cartoon in Ireland.

As the surveys for the present study were carried out at a single point in time, it is not possible to examine whether these information campaigns were successful in changing consumer attitudes.

7.2 Energy Labels at the point of sale

In a survey of the EU-15, conducted for the present project, a little more than half of all appliances in shops were fully labelled. The compliance levels varied substantially between different countries, ranging from 17% of appliances in Italian shops to 94% in the Netherlands. In only three Member States (Denmark, the Netherlands and the UK) were more than 70% of appliances fully labelled even 30 months after the Directive became mandatory. The low level of coverage means that consumers in many countries do not have full information on energy efficiency available when choosing a cold appliance.

The attitudes of the retail trade itself also influence compliance levels: 10% of the shops surveyed managed to have virtually every cold machine correctly labelled. By implication, retailer apathy is a major reason for absent labels throughout the Community.

Analysis of mail-order catalogues suggested that formal compliance levels in this sector are low. Advice to mail-order companies on how best to incorporate the information required in catalogues would be helpful. This could be done by providing templates based on current best practice which companies could easily adapt to their own catalogues.

There is only a weak relationship between the date the Directive came into force in a Member State and the proportion of appliances fully labelled in the shops. To be successful, implementation has to be supported by monitoring, enforcement and information campaigns. The latter are particularly important where the population is largely unaware of the benefits of energy efficiency in cold appliances. For instance, the low levels of compliance found in Greece, Portugal and Spain, in spite of early implementation by all three countries, might be explained by minimal levels of monitoring and enforcement activity. However, the outlets surveyed in Portugal had a slightly higher level of compliance than those in Greece and Spain, which may reflect the information campaign carried out by the CCE. This appears to have been a substantial campaign and will therefore have motivated and increased the interest of consumers.

The high levels of dealer compliance found in the Netherlands, in spite of the delay in implementing the directive, reflect the monitoring and enforcement scheme set up in the beginning of 1997 and the comparatively high level of environmental awareness in the Netherlands. Germany is a special case. Although the relevant directives had not been implemented at the time the survey was carried out, Germany had a compliance level higher than the European average. The compliance level is probably explained by the high degree of environmental awareness in the German population, by familiarity with labelling schemes such as *der blaue Umweltengel* and publicity from the German manufacturers association, ZVEI.

Trends in compliance levels could not be identified as the survey carried out for this report took place at a single point in time. In Member States where data on dealer compliance are available for more than one year (Denmark, Sweden and the Attica region of Greece), the proportion of fully-labelled appliances appears to be improving over time. This is to be expected in the early years of implementing the scheme. Monitoring compliance in a retail outlet is relatively easy and inexpensive and is essentially a local issue - a great deal could be achieved by discussion and gentle threats. Because it is easy to see whether a machine has a complete Label or not, it is disappointing that so few Member States are insisting on proper compliance.

7.3 Label accuracy

The accuracy and reproducibility of the data on which the Labels (and forthcoming minimum standards) are based is crucial both to the credibility of the Commission's market transformation initiatives and to its success in reducing energy demand. If the Label is inaccurate, the consumer has made a purchase on the basis of false information, confidence in the Label may be damaged and models will survive minimum standards that should not.

The energy performance data are supplied by the individual manufacturer. The directives make no provision for independent prior testing to verify that the declared information is correct, but specify that the appliances must be tested in the manner prescribed by the relevant European standard. Few Member States have undertaken independent verification of the accuracy of any manufacturer's Labels.

Concern has been expressed about the accuracy of the manufacturers' declared figures since the labelling scheme was first discussed. Consumer organisations, which carry out independent testing of appliances, frequently report quite different figures from those on the Label. For this report, test data from an independent test house were re-analysed to examine divergences between manufacturers' claimed figures and those produced independently. The analysis shows that there are still significant differences and that manufacturers' declared figures remain strongly skewed towards an 'optimistic' view of the efficiency of their appliances, when compared to those from independent test houses. If the independent laboratory figures are correct, substantial numbers of appliances are mislabelled, many by two or more bands. This latter point will become particularly pressing with the implementation of minimum standards; independent test data suggest that many of the appliances, which will continue to be sold, actually have a worse performance than some of those that will be removed from the market.

There are two main reasons cited for these discrepancies. First, EN 153, the group of refrigeration standards governing the testing of cold appliances, allows a tolerance of up to 15 per cent in the measured energy consumption, when the declared value is legally challenged. In the absence of legal challenges, the manufacturers could publish a figure that is 'optimistic' by this amount, even when their own laboratory data give a higher figure. The opportunity for some manufacturers to use this generous tolerance means that the correct rank order of appliances cannot be guaranteed, even in principle. A manufacturing company which issues declared energy figures that accurately reflect measured energy consumption may see its products 'overtaken' by less efficient appliances from a rival manufacturer taking liberal advantage of the tolerance within the standard. It is recommended that the tolerances within the standard be reviewed, with a view to reducing them. As the process through which standards organisations work is necessarily a slow one, it might prove quicker to reduce the tolerances by modifying the directive, rather than by modifying EN 153. The same effect would be achieved by some legal challenges by Member States.

In the case of the accuracy of the Label, the monitoring process is both costly and time-consuming. As appliances are traded internationally, there would be clear advantages for developing the network and information exchange established informally by Denmark, Ireland, the Netherlands and Sweden. This could sensibly be extended, perhaps with specific countries co-ordinating information on individual manufacturers or importers.

According to manufacturers, discrepancies occurred in the early stages of the labelling scheme, as some values were estimated rather than accurately measured. However, the re-analysis carried out for this research indicates that discrepancies are still continuing, even though the labelling scheme is now mature.

The second main reason for the discrepancies is the manufacturers' claim that any remaining differences are the result of varying test procedures and test equipment, and they raised a number of very specific questions about the ways in which the consumer laboratories carry out the tests. However, these detailed claims were refuted by CARTC, at least, and therefore cannot explain the divergence in results reported in this study. Consumer testing laboratories like CARTC are already subject to rigorous external

verification, for example certification under the NAMAS system. There do not appear to be any known problems with the specification of the relevant body of test methods (EN 153).

The Commission is launching a project to try to resolve the differences over test methods. This should reduce the scale of the problem and defuse some of the public disagreement over the value of the labels. There is an urgent need to try to resolve the continuing differences between manufacturers' test results and those produced by independent testing houses. This report has attempted to explore the reasons for divergence, but no clear explanation has emerged.

A recent agreement made within the appliance manufacturing industry, under the auspices of CECED, has established procedures so that manufacturers will be able to challenge the energy declarations of their competitors. While this is a welcome development, few challenges appear to have been made under the system and the results of these are not made public.

Overall, the level of compliance is disappointing and worrying. The combination of the low proportion of appliances labelled and the continuing controversy over the accuracy of the Labels themselves, might mean that as few as one in five appliances in the shops across Europe are fully and accurately labelled. The problem of inaccurate Labels has not been given sufficient attention by Member States. If consumers become aware of the real situation, confidence in this Energy Label - and those on wet appliances and light bulbs - could plummet and undermine the success of a suite of energy efficiency policies.

7.4 Response of consumers

The issue of real interest is the proportion of consumers who actually change their buying behaviour as a result of the Labels; it is only by changing their purchasing patterns that consumers demonstrate that the Energy Label policy is working and that energy is being saved. The link between the Label and actual purchasing behaviour depends upon a complex interaction between:

- the proportion of appliances fully labelled in the shop;
- consumer understanding of the Label;
- consumer concern about appliance energy use;
- consumer concern about the environment;
- trust in the information on the Energy Label.

Where Labels are present on appliances in the shops, they are both noticed and recalled by consumers and the majority of consumers appear to have no difficulty in understanding and interpreting the main message of the Label. The level of compliance in the shops is a highly significant factor. A close match was found between the proportion of appliances in the shops that were correctly labelled in an individual country and the level of recall of the Label by consumers in that country. The simple presence of the Labels appears to be a stronger determinant of recall than personal interest in the energy use of appliances.

A strong relationship was also found between the salience of energy use to the individual consumer and the influence of the Energy Label. This works in both the positive and the negative sense: 44% of consumers who do not think energy use is important, do not recall seeing the Label at all, while 58% of those who spontaneously mentioned energy use as a factor in choosing an appliance said that the Label had had a strong influence on their purchase. The significance of energy use as a factor in choosing an appliance varies from country to country. In four countries (Austria, Denmark, the Netherlands and Sweden), energy use is a major determinant, as important or more important than brand or price; in some other countries, few respondents mentioned it as a factor.

The emphasis on energy use is not related to the local price of electricity: high or low levels of interest in energy use can be associated with either high or low electricity prices. Although less affluent consumers could benefit most from the cost savings associated with more efficient appliances, those in the lower socio-economic groups were less likely to mention energy use as a significant factor in appliance purchasing and were more likely to concentrate on initial purchase price. Policies aimed at influencing the behaviour of these groups would have social as well as environmental benefits. This suggests that, as both manufacturers and retailers observed, the labelling scheme could be made more effective if shop staff were armed with information, training and technology to help them explain the labels in terms of potential lifetime cost savings. Targeted rebate schemes which reduce the initial purchase price of efficient appliances would assist low-income groups.

Although there is a relationship between environmental concern and an interest in the energy use of appliances, it is not a direct and straightforward one. The link between environmental awareness and receptivity to the messages on the Energy Label is not surprising - new information which does not 'fit' with what is already known by a consumer is likely to be either disbelieved, disregarded or reinterpreted to fit with the existing mental models. The survey evidence showed a weak link between mentioning household energy saving as an important environmental action in principle and mentioning energy use as a criterion in the personal choice of an appliance. Although many European consumers are aware that energy use is an important environmental issue, far fewer link this to their own personal behaviour.

A more significant factor may be a connection made between efficient appliances and 'high quality', including environmental quality. This was suggested by some of the retail companies interviewed and is tentatively confirmed from the consumer survey. It is also reinforced by the finding that the more affluent consumers are concerned with the energy use of appliances, rather than with opportunities for saving money. Environmental quality may, in this sense, have the characteristic of a luxury good. Although it is no doubt important to keep promoting the underlying environmental message, a fruitful approach to changing behaviour might be to stress the 'quality' aspects of more efficient appliances, with better environmental performance as an aspect of that high quality, together with greater reliability.

If the Labels are to be influential, consumers must trust the information that they carry. This is not - despite the concerns about label accuracy - problematic at present. Trust in the Labels varied from country to country, and was particularly high in Germany and Netherlands (in the latter, over half rated them very trustworthy), but mistrust was not a major issue anywhere. The relationship between the degree of trust in the accuracy of the Label and a willingness to be influenced by it was, in any case, a weak one.

Only a minority of purchases of cold appliances are pure 'distress' purchases: in most countries those buying on the same day accounted for only one-fifth to one-quarter of respondents. Over a half took more than a week to choose. The Energy Label is noticed as much by shoppers who are in a hurry (bought on the same day) as those who took more than a week to purchase. Those who researched their purchase were more likely to say that they had noticed the Energy Label, although 50% of those who undertook no research still reported that they had definitely seen it. For shoppers who did no research, the Energy Label is the most important source of information together with advice from retail staff. Among those who carried out research before buying, manufacturers' brochures were the most popular source of information. This suggests that the dual approach of placing Labels on the appliances, coupled with more detailed information in the 'fiche' (in the manufacturer's brochure) is appropriate.

The proportion of shoppers who reported having discussed appliances at all with shop staff varied from less than a third in the UK to almost two-thirds in Spain. Where discussions did take place, they quite frequently covered energy use or running costs. The pattern largely reflected the findings already reported: shoppers in Germany and the Netherlands were more likely to have discussed energy or running costs, those in the UK and, in this case, Italy were less likely to have done so. The advice given by shop staff on energy use appears to have been straightforward and was widely reported as helpful.

Many consumers considerably underestimated the extent to which energy consumption varies between similar machines and hence excluded energy use as a criterion in making their purchase. This again underlines the importance of retail information.

The two keys to improving the effectiveness of the labelling scheme are, therefore, to increase the proportion of labelled appliances in the shops and to persuade individual consumers that energy use is an important criterion in buying appliances. A few countries appear to be successful on both fronts, for instance Denmark and the Netherlands. These are also the two countries with the highest proportion of the population saying that the label influenced their choice of appliance when making a purchase. At the other extreme, Greece and Spain have quite low levels of compliance and relatively few respondents from these countries mention energy as a factor in buying an appliance. Again, the two countries are at the bottom end of the scale in terms of the proportion of consumers who said the Label had influenced their purchase.

This information is summarised in Table 7.1 for all eleven countries where the in-the-home survey was carried out. The first column gives the proportion of appliances fully labelled in the shops; column two is the importance to consumers of energy consumption when choosing an appliance; and column three is the proportion of consumers who said that the Label had influenced the purchase that they had made. The Table illustrates that the barriers to effectiveness are different in different countries.

Table 7.1 Overall effectiveness of labelling

	Compliance	Importance of Energy Efficiency	Influence of Label on Purchase (%)
Denmark	***	***	56
Netherlands	***	***	45
Austria	**	***	39
Sweden	**	***	39
Finland	**	**	41
Portugal	*	**	35
UK	***	*	24
France	**	*	32
Ireland	**	*	15
Spain	*	*	19
Greece	*	*	4

Note: *** >70%; ** 50-70%; * <50%

The potential for energy savings from cold appliances is related to the weather: cold appliances consume more energy in summer than in the winter, because the ambient temperature in the house is higher. In the UK, the increase is from 10 kWh per week in winter to 16.5 kWh per week in summer, a 65% rise (DECADE 1997a). The benefits of a more efficient appliances will, therefore, result in greater savings in the summer than in the winter. This will be most evident in countries with long, hot summers - particularly when temperatures of over 30ºC are experienced. Unfortunately, compliance with the labelling directive was shown to be low throughout the southern countries. These are the countries where the greatest savings could be realised making an important contribution to climate change targets.

There is probably a ceiling on the overall level of influence that labelling could hope to achieve: it may not be possible to influence more than about 60% of shoppers, if only because the limited range of models in some retail outlets and inflexible priorities (e.g. dimensions) will sometimes reduce the consumer's choice

to a single appliance. Across the 11 Member States (in Table 7.1) nearly a third of all purchasers were influenced by the Energy Label. The effect of the Energy Label on consumer purchases could, therefore, be doubled from present levels, particularly through the full labelling of all appliances.

7.5 Response of manufacturers

Interviews with the major manufacturers show that, after initial scepticism, they have begun to view the EU Energy Label as a good and efficient tool for communicating the energy efficiency of cold appliances to the consumer. The EU Label has accelerated technical and commercial developments and some manufacturers judge the Label to be a more powerful tool than minimum efficiency standards.

An overall increase of sales of class A, B, C and D refrigerators and freezers, at the expense of less efficient appliances, was reported by all manufacturers. Manufacturers claim that there has been no overall effect on their market share, but that there has been a shift in the fortunes of the component manufacturers: only those that are producing more efficient components are thriving.

Manufacturers believe that the scheme has been most effective where there has been a combined effort with third parties (government, utilities, consumer associations) to promote and explain the Energy Label. They report that particularly strong consumer response has been associated with rebate programs run by utilities. In countries where there is no such third party support, labelling levels are much lower and the most popular energy classes amongst consumers are C and D.

The appliance manufacturers see themselves as the only group which undertakes training of retailers in some countries and believe that further training and education of retailers is necessary, to equip them to provide the consumer with appropriate and accurate advice. This should include the development and dissemination of tools (by someone) that could help translate efficiency figures into actual money savings for consumers.

Most labels are assembled by the retailer, the data strip being supplied with the appliance and the colour background being distributed separately and in bulk. The cost to manufacturers of providing and distributing the labels is estimated to be 3m ecu pa. The process of distributing the labels is still thought to need improvement and some manufacturers expressed uncertainty about the legal responsibilities of different parts of the supply and dealer chain. This uncertainty is reflected by enforcement agencies, for instance Trading Standards Officers in the UK .

Total expenditure by manufacturers on promoting energy efficient products is estimated to be about 8.5m ecu pa, out of a promotions budget of about 3-400m ecu (3% or less). Manufacturers have not felt it appropriate or necessary to initiate major advertising campaigns in support of the Energy Label and there has been limited additional promotion of more efficient models. Nevertheless, they claim that the manufacturing companies and their trade associations are playing a leading role in co-ordinating publicity for the labelling scheme; the effort most often quoted was the series of campaigns run by ZVEI in Germany.

Although overall spending has not increased, the introduction of the Energy Label had an effect on the priorities of the research and development programmes of companies that were not already focused on energy efficiency. Most appliance manufacturers had to adjust some product features or dimensions to improve the efficiency of individual products. In some cases new tooling was also necessary, but the overall investment was limited. Manufacturers appreciate getting early and detailed notice of policy developments, as this prevents research and development resources being wasted.

Manufacturers are concerned about unlabelled products, even though they considerably over-estimate the proportion of appliances fully labelled in retail outlets. They also believe that retail outlets should be fined for failing to label appliances fully.

Manufacturers express concern over inaccurate labelling of appliances by their competitors and some have begun to challenge competitors' products through CECED's adjudication scheme. Neither manufacturers nor independent test houses will accept blame for uncertainty about the accuracy of the Label: each considers the other to be creating the discrepancies. This emphasises the need for the Commission and Member State governments to take a lead in resolving this long-standing controversy. The industry believes that the level of discrepancies is dropping, though this was only marginally supported by the analysis of test data carried out for this report. In general, manufacturers believe that the level of inaccurate labels is minimal and not a major cause for concern. However, they support the need for more stringent test standards and independent certification if the problem of disputed labels is not resolved.

7.6 Response of Retailers

Interviews with retailers demonstrate that this sector shows significantly less interest in the labelling scheme, because many retailers believe that consumers themselves do not place a very high priority on the energy use of appliances. Retailers consider it is not, and should not be, their responsibility to promote the Energy Label or energy efficiency and demonstrate little recognition that this is a mandatory scheme backed by legislation in both the Member State and the Commission. Some senior retail managers believe that their stores are fully compliant, when they are not, as they have not acknowledged the problem of missing Labels. Alternatively, as there is no expectation that the labelling scheme will be rigorously enforced or checked by the authorities, this may have led to complacency and apathy.

There is a consequent reluctance among retailers in many countries to put great resources into solving the logistical and systematic impediments to compliance. These mainly centre on lack of information about the scheme but, particularly in smaller companies or less centralised groups, are also accompanied by problems with the stocking and re-ordering of the labels. Retail managers believe that the distribution system for labels does not recognise retailing constraints, especially as manufacturers may operate different systems. This dislike of the bureaucracy meant that in some cases the labelling scheme was either ignored or believed not to apply particularly in the small, independent stores. In Portugal, Greece and Italy, there are twice as many retail outlets per 10,000 population as in Finland, the Netherlands and the UK. This affects both compliance levels and the task faced by national monitoring agencies.

Non-compliance with the scheme can also be explained by the conflict of the scheme's demands with the normal and various ways that retailers trade. Labelling (of almost any kind) can run counter to, or be irrelevant to, the way that retailers - particularly small retailers - actually sell appliances. The need for special labelling can conflict with, or at least lie outside, the elaborate systems (in large retailers especially) for producing and managing point-of-sales material. Shop floor staff are reputed to find the Label complex and this reduces their confidence in explaining it to consumers. The Energy Label is often seen as lacking direct meaning, to either sales person or consumer. The energy efficiency information is not fully understood - or it has to be 'translated' into something else (money saving) in order to be meaningful. This explains why in some cases the Label may not be promoted despite changes to logistical procedures or even special training. The surveys of customers gave a rather different picture: people are able to understand the main message of the Label with ease and did not identify any consistent type of information that would be a clear improvement.

Sales of white goods are being concentrated in large outlets and fierce price competition limits the opportunities for other campaigns, so few retailers make energy efficiency a focus of their marketing strategy. Large outlets prefer to promote other electrical ranges, such as brown goods, where there is more technology development and variety. The cold appliance market is seen as fairly static and unchanging. Ironically, the advent of a new focus and marketing opportunity, with the Energy Label, does not appear to have been utilised. Manufacturers have been the main source of information about the

Energy Label, but retailers believe the labelling scheme is an unwelcome chore, both for themselves and the manufacturers.

Retailers see little consumer interest in energy efficiency and do not believe the Energy Label has had much impact. Consumer interest in energy use is expected to rise at some future point - up to 10 years time - though some retail markets are already changing in this direction, particularly those of the Nordic countries. However, because of perceived consumer apathy, retailers are not monitoring consumer views on energy efficiency or plotting sales trends on this criterion.

Retailers believe that cultural variations are an evident factor: energy efficiency is believed to be important, for example, to German shoppers but of no interest to the French. Retailers are justified in believing that consumer interest is low in some countries, but they underestimate the extent to which energy use has become an important criterion. Even in countries where it is of less significance, it is now an important issue at least for a significant minority of consumers.

Energy efficiency, reliability and quality of engineering and design are often linked, both by consumers and retailers. This is partly a reaction to the problems of repair and maintenance. Significant incentives (30 ecu per machine) for retail staff would be required if they are to sell energy efficient products in some countries.

Some retailers express the view that the labelling scheme is wasteful, as only a very small proportion of all appliances are put on show with the Label attached. This argument would have less validity if each appliance bought by consumers contained the full Label. However, the provision of the Label in two parts means that few sold appliances, when delivered to the home, do so. This limits the opportunities for purchasers to learn, understand and check the information.

Raising the profile of environmental and energy issues should have positive feed-back effects on the retail sector. Retail employees are, of course, themselves members of the public and will share those motivations. Perhaps more importantly, if consumers begin to request information on energy use when making purchases, energy efficiency will be seen by retailers as a useful selling point. The extent to which appliances in the shops are fully labelled is only partly a function of enforcement and monitoring. Consumer demand is at least as important a source of pressure. This seems clear in the German example, where compliance levels were above the Community average, even before the relevant directives had been brought into force.

The research has emphasised the importance of constant and repeated information about the energy labelling scheme and its operation, directed at retailers, and better training for individual sales staff. It has also emphasised the extent to which retailers' interest in labelling follows, rather than leads, the interest of consumers.

REFERENCES

Alari, P, Pagliano, L, and Pindar, A. (pers comm) *The delayed implementation of European directives on energy labelling on domestic appliances in Italy*. Unpublished report for this project, 13 February 1998

Appliance (November 1997) European Supplement Vol. 3, No. 2

Banks, N. (pers comm) Environmetal Change Unit, University of Oxford, UK, August 1998

Bertoldi, P. (1994) *European Commission efforts to promote more efficient use of electricity: The PACE programme*. Energy in Europe Vol. 23: 57-60

CARTC (1998) *Cold appliance energy labelling project.* Final report to Environmental Change Unit, University of Oxford, UK, unpublished, February

DECADE (1997a) *Transforming the UK cold market.* Energy and Environment Programme, Environmental Change Unit, University of Oxford, UK

DECADE (1997b) *2MtC: Two million tonnes of carbon*. Energy and Environment Programme, Environmental Change Unit, University of Oxford, UK

ECD (1998) *Wet energiebesparing toestellen*. Unpublished

The Economist (1998) *The world in 1998*. London

ESB (1995) *Programme to maximise the impact of domestic appliance labelling*. Electricity Supply Board, Ireland

Electricity Council (1997) *International electricity prices*. Issue 23

Energy in Europe (1997) - *1997 - Annual Energy Review*. Energy in Europe, special issue, September 1997

European Commission (pers comm) Matthew Kestner, 21 April 1998

European Council of Ministers (1979) *Council Directive 79/530/EEC on the indication by labelling of the energy consumption of household appliances*. Official Journal of the European Communities No L 145 13.6.79

European Council of Ministers (1979) *Council Directive 79/531/EEC of 14 May 1979 applying to electric ovens Directive 79/530/EEC on the indication by labelling of the energy consumption of household appliances*. Official Journal of the European Communities No L 145 13.6.79

European Council of Ministers (1989) *Council decision of 5 June 1989 on a community action programme for improving the efficiency of electricity use (PACE)*. Official Journal of the European Communities No L 157 9.6.89: 32-34

European Council of Ministers (1992) *Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances*. Official Journal of the European Communities No L 297 13.10.92

European Commission (1994*) Commission Directive 94/2/EC of 21 January 1994 implementing Council Directive 92/75/EEC with regard to energy labelling of household electric refrigerators, freezers and their combinations*. Official Journal of the European Communities No L 45 17.2.94

European Commission (1995) *Commission Directive 95/12/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labelling of household washing machines*. Official Journal of the European Communities No L 136 21.6.95: 85

European Commission (1995) *Commission Directive 95/13/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labelling of household electric tumble driers*. Official Journal of the European Communities No L 136 21.6.95: 1-28

European Commission (1996) *Commission Directive 96/60/EC of 19 September 1996 implementing Council Directive 92/75/EEC with regard to energy labelling of household combined washer-driers*. Official Journal of the European Communities No L 266 18.1096: 1-27

European Commission (1997) *Commission Directive 97/17/EC of 16 April 1997 implementing Council Directive 92/75/EEC with regard to energy labelling of household dishwashers*. Official Journal of the European Communities No L 118 7.5.1997: 1-25

European Commission (1998) *Commission Directive 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labelling of household lamps*. Official Journal of the European Communities No L 071 10.3.98: 1-8

European Parliament (1992) 18. *Energy consumption of domestic appliances*. Debates of the European Parliament, Official Journal of the European Communities No 3-420 6.7.92: 39-40

Eurostat (1993) *Retailing in the European Single Market.* Office for Official Publications of the European Communities, Luxembourg

Eurostat (1997) *Eurostat Yearbook 1997: A statistical eye on Europe 1986-1996*. Office for Official Publications of the European Communities, Luxembourg

General Secretariat of the Council of the European Union (1990) *Thirty-eighth review of the council's work (the secretary-general's report) 1 January - 31 December 1990*. pp 78-79

GEA (1993) *Study on energy efficiency standards for domestic refrigeration appliances*. Final report of the Group for Efficient Appliances, March

Howard, E. (1998) Unpublished report for this project by Elizabeth Howard for the Oxford Institute for Retail Management

IEA/OECD (1997) *IEA electricity information*. International Energy Agency, Paris

Karbo, P. (1995) *Introduction of EU energy labelling in Denmark*. Case study project report for the Danish Energy Agency, unpublished. Copenhagen, Denmark, 27 June

Kestner, M. (1991) *First energy efficiency directives under SAVE programme: efficiency requirements for boilers, a labelling scheme for household appliances, energy certification of buildings, heat metering in multi-occupancy buildings*. Energy in Europe No 17: 25-31

NUTEK and SCA (1997) *Communication labelling*. SAVE Project #SA/III/95/SWE

Oxfordshire Trading Standards (pers comm) , 14 May 1998

Palmer, J. and Boardman, B. (1998) *DELight: Domestic Efficient Lighting*. Energy and Environment Programme, Environmental Change Unit, University of Oxford, UK

Paul Waide Consulting (1996) *European domestic refrigeration appliances. Minimum energy efficiency standards scenario analysis*. PW Consulting for ADEME, November

Pindar, A. (pers comm) Department of Energy, Politecnico di Milano, Italy, 19 May 1998

SCA (1995/1996) *Energimärkning av kyler och fryser. En uppföljning av energideklarationen för kyler och frusar I butik.* Swedish Consumer Agency, Report 1995/96:16

SCA (1997) *Energidelaration av hushållsapparater I praktiken*. Swedish Consumer Agency, Report 1997:22

Suffolk Trading Standards (1998) *Energy labelling project*, UK

Van Holsteijn en Kemna (1998) Unpublished report for this project, the Netherlands

GLOSSARY

ADEME - Agence de l'Environnement & de la Maîtrise de l'Energie, France.

BEUC - Bureau Européen des Unions des Consommateurs: Represents the views of European consumer organisations at the EC level.

CA - Consumers' Association, UK.

CARTC - Consumers' Association Research and Testing Centre, UK.

CCE - Centro para a Conservação de Energia, Portugal.

CECED - the European Committee of Manufacturers of Domestic Equipment.

CEN - Comité Européen de Normalisation: the committee responsible for harmonising standards and test procedures across Europe.

CENELEC - Comité de Normalisation Électro-technique: a subsidiary of CEN dealing with standards and test procedures for electrical goods.

DEA - Danish Energy Agency.

DETR - Department of the Environment, Transport and the Regions, UK.

DVN - Dansk Varefaktanævn: the Danish Institute for Informative Labelling.

EC - see European Community.

ECD - Economic Control Survey, Ministry of Economic Affairs, the Netherlands.

ECU - Environmental Change Unit, University of Oxford, UK.

EDF - Electricité de France: central electrical utility responsible for the generation, transmission and distribution of electricity in France.

EDP - Electricidade de Portugal: the holding company for firms that generate, transmit, and distribute electricity in Portugal.

ELDA database - a comprehensive database of domestic electrical appliances containing all relevant product information including energy efficiency and performance. The database was developed in Denmark and is used by Danish utilities such as Copenhagen Energy to advise consumers on the most suitable appliances for their needs. ELDA is also used in some Scottish Hydro Electric shops, and under SAVE II it is being developed further for wider European dissemination including Portugal, Sweden, and Austria.

ESB - Electricity Supply Board, Ireland.

EU - See European Union.

European Community (EC) - sometimes referred to as the Community. Established by the Treaty Establishing the European Community, Rome 25 March 1957.

European Union (EU). Established by the Treaty of the European Union, Maastricht 7 February 1992. The EU comprises the European Community as well as the two so-called co-operation mechanisms 'Foreign Defence and Security Cooperation Policies' and 'Home Affairs and Justice'. The European Union has no legislative powers, which reside in the European Community.

Fiche - a standard table of information relating to a particular model of appliance. The fiche has to be included in all product brochures and if these are not provided, with other product literature supplied with the appliance. The fiche was introduced in order to give the consumer an additional source of information to the label, so that consumers who wish to take more time to decide on their purchase can take the information away with them in the same way as other product information.

GDA - General Domestic Appliances: the UK's largest domestic appliance manufacturer.

GEA - Group for Efficient Appliances: a consortium of researchers from EU national energy agencies, funded by the SAVE programme and national governments.

IEA - International Energy Agency: the energy forum for 24 industrialized countries. IEA member governments are committed to taking joint measures to meet oil supply emergencies. They also have agreed to share energy information, to coordinate their energy policies and to cooperate in the development of rational energy programmes. These provisions are embodied in the Agreement on an International Energy Programme (IEP), which established the Agency in 1974.

IEC - Irish Energy Centre.

ISO - International Standards Organisation.

LACOTS -Local Authorities Co-ordinating Body on Food and Trading Standards; Uk.

Member States -

AU	Austria
BE	Belgium
DK	Denmark
FI	Finland
FR	France
GE	Germany
GR	Greece
IR	Ireland
IT	Italy
LU	Luxembourg
NL	Netherlands
PO	Portugal
SP	Spain
SW	Sweden
UK	United Kingdom

MOTIVA - Information Centre for Energy Efficiency, Finland.

Mtoe - million tons of oil equivalent. 1 mtoe = 11.63 TWh

NOVEM - The Netherlands Agency for Energy and the Environment.

NUTEK - Swedish Energy Agency.

PACE - Community Action Programme for Improving the Efficiency of Electricity End Use, EU.

SAVE - Specific Actions For Vigorous Energy Efficiency.

SCA - Swedish Consumer Agency.

TSO - Trading Standards Officer, UK.

ZVEI - Zentralverband Elektrotechnik und Elektronikindustrie E.V. German trade association of appliance manufacturers.

COMMISSION DIRECTIVE 94/2/EC

of 21 January 1994

implementing Council Directive 92/75/EEC with regard to energy labelling of household electric refrigerators, freezers and their combinations

THE COMMISSION OF THE EUROPEAN COMMUNITES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources of household appliances ([2]), and in particular Articles 9 and 12 thereof,

Whereas under Directive 92/75/EEC the Commission is to adopt an implementing directive in respect of household appliances including refrigerators, freezers and their combinations;

Whereas electricity use by refrigerators and freezers accounts for a significant part of total Community electricity demand; whereas the scope for reduced energy use by these appliances is substantial;

Whereas CEN (European Committee for Standardization) standard EN 153 provides a method for measuring the consumption of energy of refrigerators, freezers and their combinations;

Whereas the Community, confirming its interest in an international standardization system capable of producing standards that are actually used by all partners in international trade and of meeting the requirements of Community policy, invites the European standards organizations to continue their cooperation with international standards organizations;

Whereas the European Committee for Standardization and the European Committee for Electrotechnical Standardization (Cenelec) are the bodies recognized as competent to adopt harmonized standards in accordance with the general guidelines for cooperation between the Commission and these two bodies signed on 13 November

1984; whereas, within the meaning of this Directive, a harmonized standard is a technical specification (European standard or harmonization document) adopted by CEN or Cenelec on the basis of a remit (mandate) from the Commission in accordance with the provisions of Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information in the field of technical

[2] OJ No L 297, 13. 10. 1992, p. 16.

standards and regulations ([3]), as last amended by Commission Decision 92/400/EEC ([4]), and on the basis of those general guidelines;

Whereas the measures set out in this Directive are in accordance with the opinion of the committee set up under Article 10 of Directive 92/75/EEC,

HAS ADOPTED THIS DIRECTIVE:

Article 1

1. This Directive shall apply to electric mains operated household refrigerators, frozen food storage cabinets, food freezers and their combinations. Appliances that may also use other energy sources, such as batteries, are excluded.

2. The information required by this Directive shall be measured in accordance with EN 153 of May 1990 or with harmonized standards, the reference numbers of which have been published in the *Official Journal of the European Communities* and for which Member States have published the reference numbers of the national standards transposing those harmonized standards. The information relating to noise, where applicable, shall be measured in accordance with Council Directive 86/594/EEC ([5]).

3. The harmonized standards referred to in paragraph 2 shall be drawn up under mandate from the Commission in accordance with Directive 83/189/EEC.

4. 'Dealer', 'supplier', 'information sheet', and 'supplementary information' shall have the meanings set out in Article 1 (4) of Directive 92/75/EEC.

Article 2

1. The technical documentation referred to in Article 2 (3) of Directive 92/75/EEC shall include:

- the name and address of the supplier,

- a general description of the appliance, sufficient for it to be identified,

- information, including drawings as relevant, on the main design features of the model and in particular items which appreciably affect its energy consumption,

- reports of relevant measurement tests carried out under the standards referred to in Article 1 (2) of this Directive,

[3] OJ No L 109, 26. 4. 1983, p. 8.
[4] OJ No L 221, 6. 8. 1992, p. 55.
[5] OJ No L 344, 6. 12. 1986, p. 24.

- operating instructions, if any.

2. The appliances covered by this Directive shall be divided into the 'categories' set out in Annex IV.

3. The label referred to in Article 2 (1) of Directive 92/75/EEC, shall be as specified in Annex I to this Directive. It shall be placed on the outside of the front or top of the appliance, in such a way as to be clearly visible, and not obscured.

4. The content and format of the fiche referred to in the third indent of Article 2 (1) of Directive 92/75/EEC shall be as specified in Annex II to this Directive.

5. In the circumstances covered by Article 5 of Directive 92/75/EEC, and where the offer for sale, hire, or hire purchase, is provided by means of a printed communication, such as a mail order catalogue, then that printed communication shall include all the information specified in Annex III to this Directive.

6. The energy efficiency class of an appliance shall be as specified in Annex V.

Article 3

Member States shall take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this Directive.

Article 4

1. Member States shall adopt and publish the provisions necessary to comply with this Directive by 31 December 1994. They shall immediately inform the Commission thereof. They shall apply those provisions from 1 January 1995.

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 text of the provisions of national law which they adopt in the field covered by this Directive.

Article 5

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

Article 6

This Directive is addressed to the Member States.

Done at Brussels, 21 January 1994.

For the Commission
Abel MATUTES
Member of the Commission

APPENDIX 2.1: IMPLEMENTATION SURVEY QUESTIONNAIRE

1. When was Directive 94/2/EC translated into national law ?

2. When did that law come into force?

3. What provisions have been made to monitor and enforce compliance with the directive? Please include any examples of prosecutions and other enforcement steps which you know have been taken.

4. Are you aware of any concern or complaints about non-compliance, or about the accuracy of the energy labels?

5. Are you aware of any studies that have been carried out to check whether the legislation is being properly complied with?

6. Article 7c of Directive 92/75/EEC calls upon Member States to take all necessary measures to ensure that the introduction of labelling is accompanied by 'educational and promotional information campaigns aimed at encouraging more responsible use of energy by private consumers'. Could you give brief details of any such campaigns that have been undertaken ?

7. The Directive requires the 'supplier' of refrigeration appliances to collect technical information, including test reports 'by relevant notified organisations'. How have these 'relevant notified organisations' been defined ?

8. Member states can 'require suppliers to furnish [this] information' when 'they have reason to suspect it is incorrect'. Do you know of any such inspections that have been carried out ?

9. Are you aware of any studies looking at the impact of the labelling scheme, for example on the average efficiency of appliances sold ? Do you know of any evaluations of awareness of the labels among consumers, manufacturers or retailers?

10. Are you aware of any studies that have been carried out in your country to compare the success of the Energy Label with other energy efficiency schemes, either in the EU or beyond it?

11. Are any other environmental and/or energy labelling schemes applying to domestic refrigeration equipment in force ?

12. Are you aware of any studies which assess the current state of consumer knowledge about domestic energy consumption/energy efficiency ?

APPENDIX 2.2 : INSTITUTIONS CONTACTED FOR THE IMPLEMENTATION SURVEY

Austria
Federal Ministry for Economic Affairs:
Section for Technology and Innovation, Department for Electrical Safety

Belgium
Ministry for Economic Affairs:
Energy Administration
Economic Inspection Administration

Flemish Regional Authority
Walloon Regional Authority
Brussels Regional Authority
Flemish Electrical Innovation Centre
CRIOC (Centre for Research and Information for the Consumer Organisations)

Denmark
Ministry for Environment and Energy:
Danish Energy Agency

Danish Institute for Informative Labelling
Energy Saving Trust
Danish Technological Institute
Danish Consumer Agency

Finland
Ministry of Trade and Industry
LINKKI Research Program on Consumer Habits and Energy Conservation

France
Ministry of Industry:
Directorate Generale for Energy and Raw Materials

Regional Agency for Energy (Lille)

Germany
Ministry of Economics:
Energy Conservation Division

Greece
Ministry of Development:
Directorate General for Energy, Renewable Energy Sources and Energy Saving

CRES (Centre for Renewable Energy Sources)
ELKEPA (Greek Productivity Centre)

Ireland
Irish Energy Centre

Luxembourg
Ministry of Energy

Netherlands
Ministry of Economic Affairs:
Main Office
Economic Control Survey (ECD)

Portugal
Ministry for Economy:
Directorate General for Energy

Centre for Energy Conservation (CCE)
EDIDECO

Spain
Ministry of Industry and Energy:
Sub-directorate General for Energy Planning

Commission Interministerial Para Alimento
Ministerio de Sanidad y Consumo:
Instituto Nazional del Consumo
Centro de Investigacion y Control de la Calidad

Organisación de Consumidores y Usarios

Sweden
Swedish Consumer Agency & Consumer Ombudsman
NUTEK

UK
Department of Environment Transport and the Regions:
Energy and Waste Management Directorate
Market Transformation Team, Environemnt and Business Team

Energy Saving Trust
LACOTS

APPENDIX 3.1: RESEARCH ORGANISATIONS PARTICIPATING IN THE SURVEY OF RETAILER COMPLIANCE

DEALER COMPLIANCE SURVEY 1997

Austria	Verein für Konsumenteninformation
Belgium	Verbruikersunie/Association Belge des Consommateurs
Denmark	Forbrugerrådet
Finland	Kuluttajavirasto
France	E.S.T.C.F
Germany	Stiftung Warentest
Greece	E.K.PI.ZO - Consumers' Association
Ireland	Consumers' Association of Ireland
Italy	Editoriale Altroconsumo
Luxembourg	Test Achats
Netherlands	Consumentenbond
Portugal	Edideco - Editores para a Defesa do Consumador
Spain	EDOCUSA
Sweden	Konsumentverket
UK	Consumers' Association

APPENDIX 3.2: DETAILS OF TESTS

For appliances tested prior to and post 1996 there were some differences in the recorded data. Prior to the introduction of energy labels, some manufacturers made declarations of energy consumption and volumes. The energy consumption of each appliance was tested at CARTC based on BS EN ISO 7371:1996 (refrigerators), or BS EN ISO 5155:1996 (freezers), or BS EN 28187:1992 (fridge-freezers).

CARTC recorded the volumes declared on appliances. It is assumed that manufacturers' volumes were measured under BS EN ISO 7371:1996 (refrigerators), or BS EN ISO 5155:1996 (freezers), or BS EN 28187:1992 (fridge-freezers), however they were not checked at CARTC.

If an appliance did not have either a manufacturer's stated annual or daily energy consumption, or if the volumes were not available, they have been excluded from this report.

During 1997 CARTC began measuring and reporting volumes using the relevant ISO methods, as well as recording declared volumes. Calculations in this report of the energy label rating of appliances tested prior to 1996 are based on figures provided by the manufacturers, and may be compared with figures derived from CARTC test results in a future draft.

Prior to 1996, appliance controls were adjusted to obtain the required optimum internal temperatures. After this data, the method was usually one of interpolation between results for tests with internal temperatures above and below the -18ºC required in the freezer and the 5ºC in the refrigerator, except for forced air appliances, where the results were obtained by optimising the appliances, as specified in BS EN ISO 8561. There are some exceptions to this in projects after 1996, where if the first interpolation run gave the required optimum temperatures, a second run was not undertaken, and the run was used as an optimised result. Both methods, i.e. interpolation or optimisation, are allowed under paragraph 15.2.2 of the relevant standards for appliances not cooled by forced air. For those appliances which are cooled by forced air, the optimisation should be used.

From 1996 onwards all refrigeration appliances tested at CAT&TC are supplied either were supplied either in 'pairs' with other, similar, models, or as two samples of each brand. Prior to that data second samples were only obtained if the energy consumption results of the first sample was more than 15% in excess of the figure declared by the manufacturer. Thus there are examples from 1994 of one sample more than 15% over the declared energy consumption, and the second sample is either within 15% of the declared energy consumption, or confirms the findings for the first sample.

APPENDIX 4: RESEARCH ORGANISATIONS PARTICIPATING IN SURVEYS OF CONSUMERS

RECALL SURVEY NOVEMBER 1997

Austria	IFES Austria
Denmark	AIM Nielsen
Finland	Taloustutkimus
France	SOFRES
Greece	MRB Hellas
Ireland	MRC Ireland
Netherlands	NIPO
Portugal	IPSOS Portugal
Spain	ECO Consulting
Sweden	GfK Sverige
Great Britain	BMRB International

STREET SURVEY FEBRUARY 1998

Germany	Nielsen Marketing Research
Italy	Metron R&C
Netherlands	Analyse Research & Strategy
Spain	ERYBA
United Kingdom	CfS International

APPENDIX 5.1: ISSUES COVERED IN INTERVIEWS WITH MANUFACTURERS

1. How has the present EU Energy Label affected the product's
   a. R&D ?
   b. Price ?

2. How has the present EU Energy Label affected the marketing/sales
   a. Up/down ?
   b. Reaction retailer ?
   c. Reaction consumer ?

3. How has the present EU Energy Label affected the production
   a. Extra investments (tooling) ?
   b. Employment ?

4. Legal implication and distribution EU Energy Label
   a. Why only 40% of cold appliances with label ?
   b. Logistics/distribution: different situation in each country ?
   c. False labels ?

APPENDIX 5.2: MANUFACTURERS INTERVIEWED

Whirlpool Europe Srl., Comerio, Varese, Italy.
- Mr. Evasio Novarese, Vice President Manufacturing & Technology, Refrigeration & Cooking
- Mr. Franco Moretti, Government Affairs

Bosch-Siemens Hausgeräte GmbH, München, Germany.
- Dr. Rolf Wurch, Corporate Staff Division Engineering, Standardization, Association Affairs and Liaisons.

GRAM A/S, Gram Domestic, Vojens, Denmark.
- Mr. Ernst Zimmer, Sales and Marketing Director.

Fagor Electrodomesticos, Mondragon, Spain.
- Ms. Begoña Igartua, Manager Central Quality Department.
- Mr. Carmello, staff member Central Quality Department.

Candy Elettrodomestici Srl., Brugherio (Milano), Italy
- Ing. R. Tarallo, General Technical Director, Candy group
- Dr. B. Fumagalli, General Marketing Director, Candy group.

Merloni Elletrodomestici spa, Fabriano (AN), Italy.
- Mr. Giuseppe Salvucci, Marketing Manager free standing appliances
- Mr. Francesco Marinelli, R&D Manager refrigeration appliances

AB Electrolux, Stockholm, Sweden
- Mr. Ingemar Hahn, Marketing Department/Evironmental affairs.

APPENDIX 5.3: MANUFACTURER ASSOCIATIONS

UK : AMDEA
Association of manufacturers of domestic electrical appliances.

Spain : ANFEL
Asociación nacional de fabricantes electrodomesticos línea blanca.

Italy : ANIE
Associazione nationale industrie elettrotecniche ed elettroniche.

Sweden : EHA
Swedish Association for electrical appliances.

Belgium : FABRIMETAL
Federation des entreprises de l'industrie des fabrications metalliques.

Austria : FEEI
Fachverband Elektroapparate für Haushalt und Gewerbe Scheiz.

Denmark : FEHA
Foreningen af fabrikanter og importører af elektriske husholdningsapparater.

France : GIFAM
Groupement interprofessionel des fabricants d'appareils d'equipement menager.

Netherlands : VLEHAN
Vereniging leveranciers van huishoudelijke apparaten in Nederland.

Germany : ZVEI
Zentralverband Elektrotechnik und Elektronikindustrie e.v.

CECED
National trade associations are a member of the European Manufacturer Association "CECED"; some individual manufacturers are direct CECED-members:

Atag Kitchen Group BV
Bosch-Siemens Hausgeräte GmbH
Brandt S.A.
Candy Elettrodomestici Srl
Electrolux Holdings Ltd
Merloni Elettrodomestici SpA

Miele & Cie. GmbH & Co.
Whirlpool Europe Srl

ceced

Agreement
about the verification of data declared on energy labels

Background:

The Participants realise the significance of data declared on the energy labels and in the fiches. They deem it very important that consumers have confidence in the information given by the energy labels. Therefore the Participants will carry out the necessary tests and declare the data according to the relevant European Standards and will endeavour to ensure the correctness of the data. In order to settle any dispute about the correctness of data effectively, the Participants commit themselves to the verification procedures as described in this Agreement.

Definitions:

For the purpose of this Agreement, specific definitions are as follows:

Participant:	manufacturer or supplier having signed this Agreement
Data:	any value declared on an energy label or in a fiche of a product which is marketed by a Participant
Third Party:	any party which does not manufacture or market major household appliances
Appliance:	any product which is marketed under a brand name of a Participant and which is subject to a published European Directive on Energy Labelling.

Commitment:

1. In case any appliance data declared by a Participant is questioned by another Participant, both parties will act according to the procedure as shown in annex 1.

2. In case any appliance data declared by a Participant is questioned by a Third Party, the Participant will deal with the complaint according to the procedure as shown in annex 2. If the Third Party is not willing to accept the terms of the procedure as shown in annex 2 the Participant is at liberty to deal with the complaint in the way he deems to be appropriate.

3. If a Participant does not follow the procedure properly as shown in annex 1 in the course of a verification case, the other Participant is at liberty to take additional measures.

ceced

4. In case one or more requirements of this agreement are subject to different interpretation or are not practicable in the course of a specific verification case, the Participants will act according to the spirit and the goal of this agreement.

Company _____

_____

Name _____

Position _____

Signature _____

Date _____

ceced

Annex 1

Verification process in case of a dispute among Participants

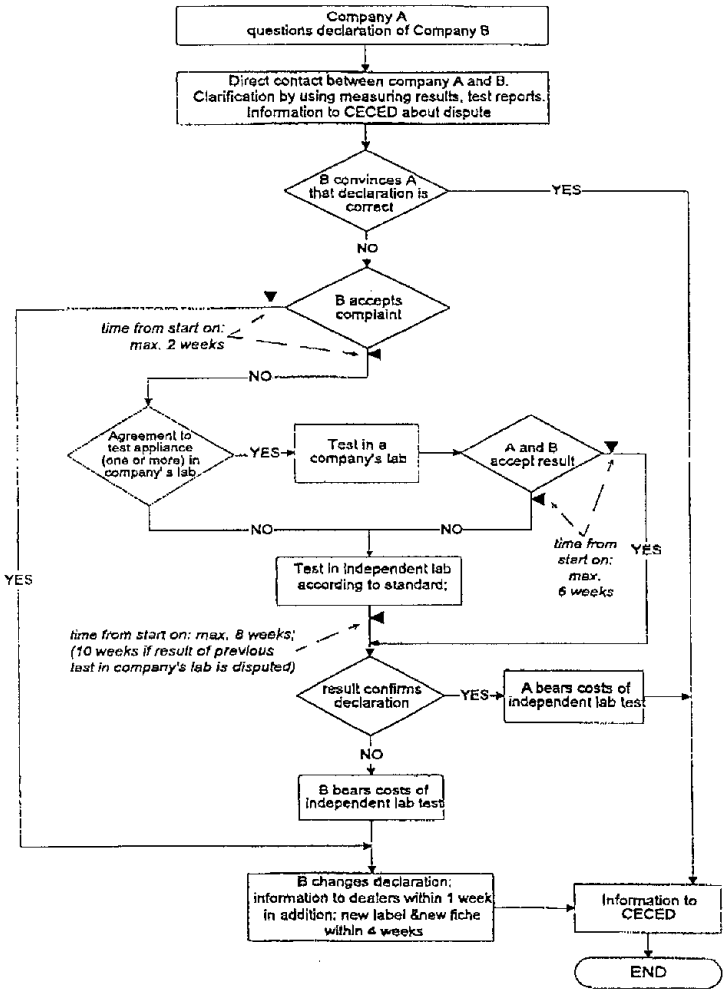
1. In case data on a label or in a fiche are questioned, the nominated persons responsible for the energy labelling shall get in direct contact and clarify the matter by explaining their views and exchanging relevant documents. This step should take not longer than two weeks after the complaint has been stated. The CECED General Secretary is to be informed about the dispute in writing

2. In case the data in question is unanimously considered or proved incorrect, the challenged party will inform its customers (dealers) in an appropriate way within one week and will distribute changed labels and fiches within four weeks' time. The General Secretary of CECED is to be informed about the outcome of the verification case in writing.

3. If a clarification by communication cannot be achieved, the appliance in question will be tested, preferably in a company's lab to save time and costs. The result of the testing in a company's lab should be available after 6 weeks (time counted from the beginning of the dispute). If both parties acknowledge the test result, further steps are to be taken according to No. 2 as shown above.

4. However, if an agreement to test in a company's lab cannot be achieved, or if the result of this test is not acknowledged by both parties, a test will be carried out in an independent experienced laboratory strictly according to the relevant European Standards. The result of this testing should be available after 8 weeks or 10 weeks respectively if a test in a company's lab was already carried out (time counted from the beginning of the dispute). The result is to be accepted by both parties. Costs will be covered by the party whose claim has been proved wrong. Further steps are according to No. 2 as shown above.

ceced



CECED Energy Label Verification Procedure (for internal purposes)

ceced

Annex 2

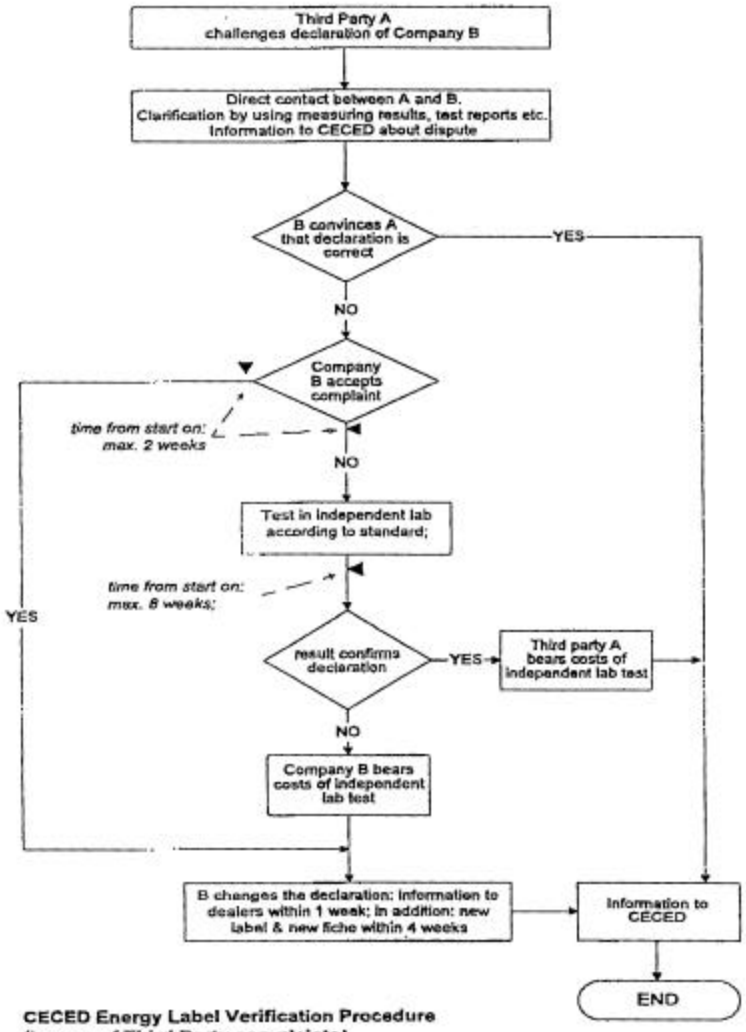
Verification process in case of a complaint by a Third Party

1. In case data on a label or in a fiche are questioned, the challenged Participant and the complaining Third Party shall get in direct contact and try to clarify the matter by explaining their views and exchanging relevant documents. The Participant shall inform the CECED Secretary General about the dispute in writing. This step should take not longer than two weeks after the complaint has been stated.

2. In case the data in question is unanimously considered or proved incorrect, the Participant will inform its customers (dealers) in an appropriate way within one week and will distribute changed labels and fiches within four weeks' time. The Participant shall inform the CECED Secretary General about the outcome of the verification case in writing.

3. If a clarification by communication cannot be achieved, a test will be carried out in an independent experienced laboratory strictly according to the relevant European Standards. The result of this testing should be available after 8 weeks (time counted from the beginning of the dispute). The result is to be accepted by both parties. Costs will be covered by the party whose claim has been proved wrong. Further steps are to be taken according to No. 2 as shown above.

ceced



CECED Energy Label Verification Procedure
(in case of Third Party complaints)

APPENDIX 6.1: ISSUES COVERED IN INTERVIEWS WITH RETAILERS

1. What have been the most important general trends, in the last 2 years, in the market for cold appliances (fridges, freezers, fridge-freezers):

- *in the market overall*
- *in your business*
- *the models and ranges of models of appliances*
- *in prices*
- *in consumer concerns and interests*
- *own label/private brand developments*

2. What important future changes do you expect, short and long term, and why?

- *environmental concerns,*
- *government policy,*
- *your plans /other retailers' strategies,*
- *consumer concerns,*
- *need for energy saving*

3. How has the European energy labelling scheme been implemented:

- *what is the process by which appliances are labelled?*
- *are there any variations in this?*
- *are there any impediments to full labelling?*
- *what are the reasons for lack of labelling?*
- *what changes have there been to date or are there planned in the future*

4. What effects has the labelling scheme had, and how, and why:

- *on your customers (what concerns do your customers have about the energy efficiency of appliances? Which sort of customers? Do you think these will change in future?)*
- *your company's sales, buying policies, merchandising, staff training, anything else?*

5. What information about, or assistance with, the labelling scheme do you have, or have you had:

- *from manufacturers?*
- *from government or other public agencies?*
- *from trade associations, elsewhere?*

6. What information or assistance would you like?

- *with staff training;*
- *public awareness campaigns,*
- *other?*

7. How could the labelling scheme be improved?

APPENDIX 6.2: DESCRIPTIONS OF NATIONAL COLD APPLIANCE MARKETS

France

A significant proportion of electrical appliances are sold by the large hypermarket sector (almost one third - all electricals, no figures for cold appliances separately). Hypermarkets are very large stores (over 5,000 sq m) selling both groceries and limited lines of non-food goods. French hypermarkets and the chains of rather smaller superstores, tend to be less centralised in their systems (buying and distribution especially) than those in the UK, but perhaps more so than those in Germany. (Italy has relatively few.) Department stores are less involved in electricals retailing than Germany or UK. Of the electrical specialist stores, at least 85% are independent, though most are combined into buying groups (for example, Expert, Connexion and Gitem) and may appear more integrated than is in fact the case. The largest electricals multiple, Darty, is now part of the UK group Kingfisher. Kingfisher also part owns another chain, But. The second largest specialist chain, Boulanger, is part of the large French company Auchan which is mainly a grocery/hypermarket retailer. Among both buying groups and the multiples there has been a trend towards larger outlets, with wider ranges of appliances on sale.

Spain

Spanish electrical retailing remains very fragmented. There are very many electrical retailers. The majority are independents or local chains, operating small stores. Estimates of the numbers vary from 10,000 to 18,000 (cf France with under 12,000 electrical stores including hypermarkets etc., in a country with almost 1.5 times the population and total retail sales around 3 times greater). Many are affiliated to buying groups such as Epert-Fadesa, Gestesa-Master, or Densa-Tien. Larger multiple chains and larger stores are much less common than in northern Europe. Hypermarket groups have however been growing considerably in Spain in the last decade, and department stores and especially hypermarkets are taking an increasing share of the white goods market. Estimates of market shares vary. An important feature however is the lack of large multiple chains of specialist electrical retailers, and the lack of non-Spanish specialist retailers.

Portugal

Portugal shows a picture of small, independent electrical retailers, with 'modern' large scale retailing growing recently in hypermarkets, and department stores, but not significant national specialists. The country has seen a boom in retail property development since the late 1980s, associated with rapid changes in the structure of the sector. Most new development has bypassed the town centres and gone instead to out-of-town and suburban shopping centres. As in Spain, French groups have spearheaded this development, and created a hypermarket system. The development of some large general shopping centres have also been important in changing the shape of shopping in Lisbon and Oporto, associated with the growth of specialist retailers and particularly department stores.

UK

Domination by the multiples and a radical restructuring of chains, both associated with a move to larger stores, are the distinguishing features of the UK structure. Mergers, closures and sales of operations, in several rounds of activity, have followed the privatisation of the Regional Electricity Boards. A handful of smaller RECs still operate small chains, but most operations have gone in to much larger groups. The specialist independents take only around 1/5 of the overall electrical market in contrast to other EU

countries. Specialist multiples take over one third, and much of the remaining sectors (departments stores, variety stores, hypermarkets and mail order) are also heavily dominated by corporations with multiple outlets. Buying groups are not significant.

Germany

Germany is the largest retail electrical market in Europe, and has seen marked changes in spending, related directly to changes in the consumer economy during the 19902, in both east and western parts. Official statistics show 19,555 white goods shops after re-unification; later figures from Nielsen show the usual trend of decreasing numbers of stores. Nielsen give the department, variety and important mail order sector 18% of the electrical market overall, electrical specialists 54%, kitchen specialists 14% , and the DIY hypermarket sector 13%. Mail order for white goods is traditionally important in Germany - much more than elsewhere. Quelle and Otto Versand are the major players, but there are numerous smaller companies.

The specialists are dominated by buying groups such as Expert. Metro is the largest single company specialist by some distance: its Media Markt chain now has almost 100 superstores in Germany (and over 30 outside Germany). It is growing very rapidly as a chain and as an international chain. Its stores are copied by rivals; its impact on retail markets is very important. The Metro group is by far the biggest electricals retailer in Germany as it also sells these goods through its hypermarket, department and variety stores (Kaufhof)

Italy

Estimates of the number of shops selling electrical appliances vary according to source and coverage. Nielsen's figure of 46,000 in '93 includes mixed goods retailers. The significant feature is that there are few multiple chains, and very many very small retailers and small stores - in a large market. La Rinascente (one of the top handful of Italian multiples) began to develop a chain of specialist electrical stores but has now sold them to its buying group partner GRE. There are regional chains such as Eldo and Steviani and Elletroingross, each with less than a dozen stores. The recent arrival and development of to date 14 superstores by Media Markt (Metro) from Germany is the most important influence and potential influence on appliance retailing. Otherwise the bulk of appliances are sold through buying groups and co-operatives. The largest is GET followed by the Expert organisation in Italy called Serta Expert, then GRE/Idea and Ecoitalia.

Nordic countries

The Nordic region is dominated by a few large general retailers, in co-operative structures of various kinds, often however with small store formats. There are few specialist electrical chains and again the buying groups are important among independent retailers. Foreign companies are not important. In Sweden there are no national electrical chains. In Denmark the largest chain is Snehvide/Køkkenland which accounts for 25% of the market. In Finland the largest chain, Musta Porssi with 76 outlets, is part of the Kesko (co-operative) Group, and therefore less centralised in its operations than might be expected. Buying groups link the independents again, but not in most matters of operations: especially Linkopia Expert and the smaller Serv-Line in Sweden, and Radioliilleiden Expert in Finland, Elkjop and Eilag in Norway, Danexpert in Denmark.

Benelux

The Belgian and Netherlands retail markets have been restricted in the growth of large stores: some large retail firms have developed however. Franchising is a significant form of retail growth. In the

Netherlands the largest specialist multiple is part of the Vendex group with about 115 outlets under a variety of names (Dixons, Electro-Jacobs , Guco etc.); Megapool has just under 100 outlets including a number of franchises; Its Electric has around half this number and there are other smaller chains. In Belgium multiples take a smaller share of the market, but Vanden Borre (now owned by UK's Kingfisher) runs stores which are notably larger than most others often in out-of-town sites. Expert buying group again has the largest sales among independents; Electronic Partner and Elektro Vakman have 250 and 200 members respectively in the Netherlands and Electronic Partner also has associations in Belgium.